Geometry Workbook

Circles

krista king
MATH

EQUATION OF A CIRCLE

■ 1. A circle has a radius of 4 and center at $(-2,5)$. Write the equation for this circle.

■ 2. Find the center and diameter of the circle given by $(x-3)^2+(y+2)^2=9$.

■ 3. A circle has a diameter with endpoints at $(-3,-1)$ and $(3,7)$. Find the equation of the circle.

■ 4. A cellphone tower services a 17 mile radius. A rest stop on the highway is 6 miles east and 8 miles north of the tower. If you continue to travel due east from the rest stop, for how many more miles will you be in range of the tower?

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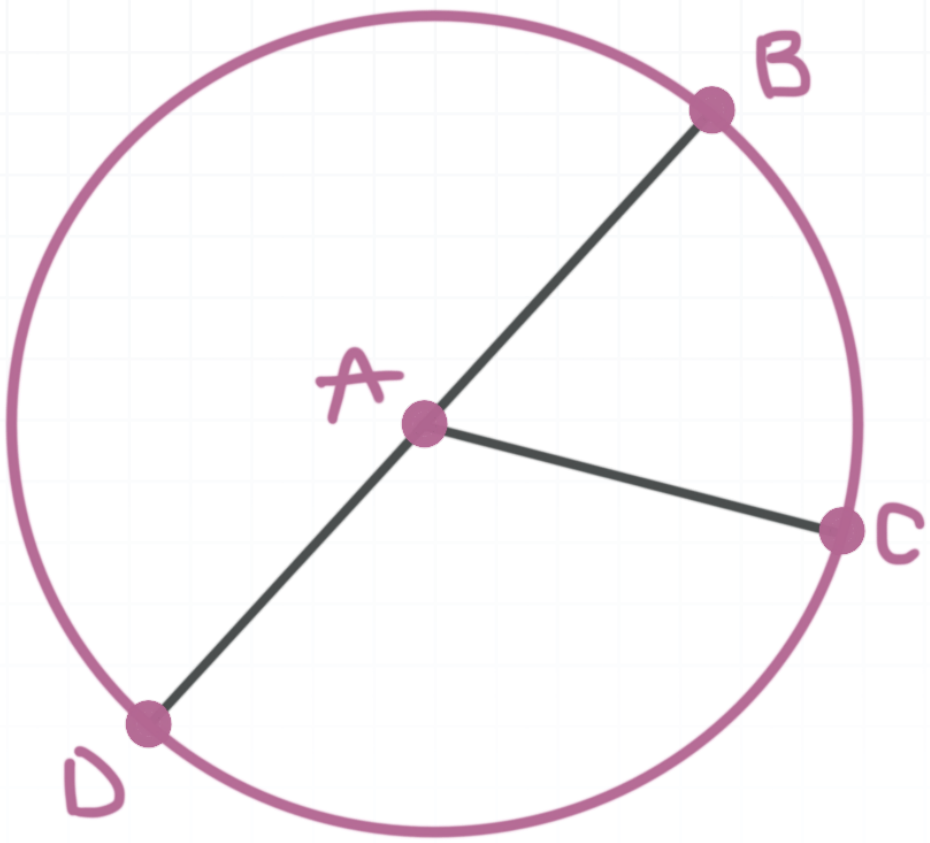
DEGREE MEASURE OF AN ARC

1. In $\odot A$, $m\angle BAC = 65°$ and $\overline{BD}$ is a diameter. Find the measure of arc DC.



2. In $\odot J$, $m\angle KJL = 54°$ and $\overline{KM}$ and $\overline{LN}$ are diameters. Find the measure of arc MN.

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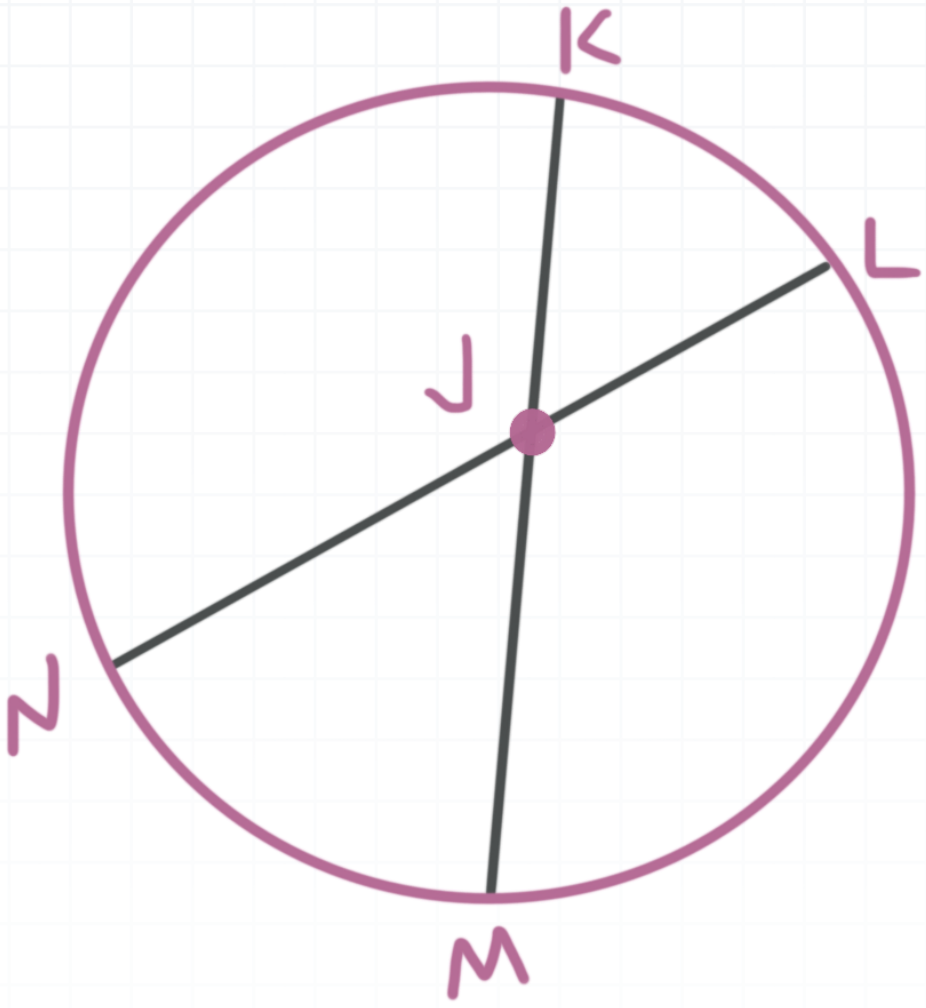

■ 3. In $\odot K$, $m\angle EKG = 70°$, $\overline{EH}$ is a diameter, and $\overline{KF}$ bisects $\angle EKG$. Find the measure of arc FEH.

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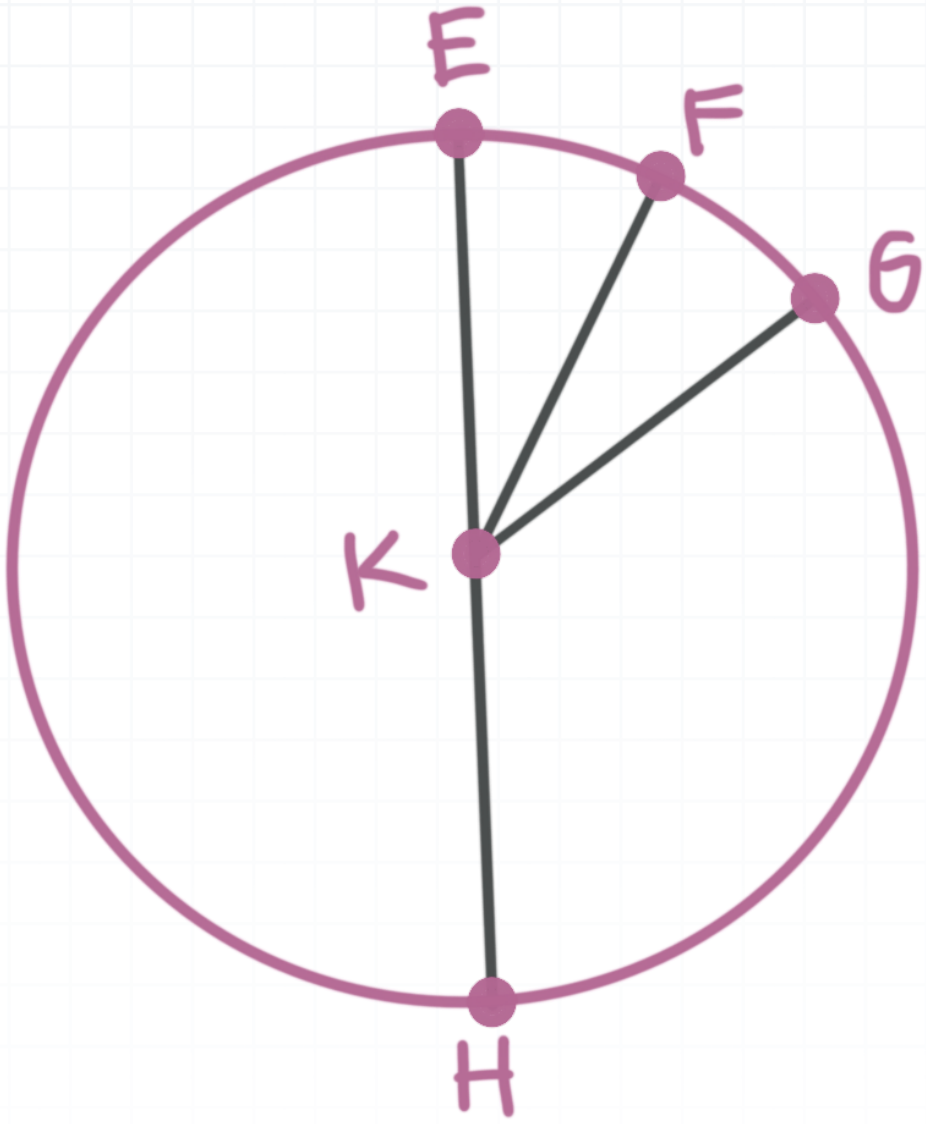

4. Find the measure of arc PR, if $\overline{PS}$ is the diameter of $\odot T$.

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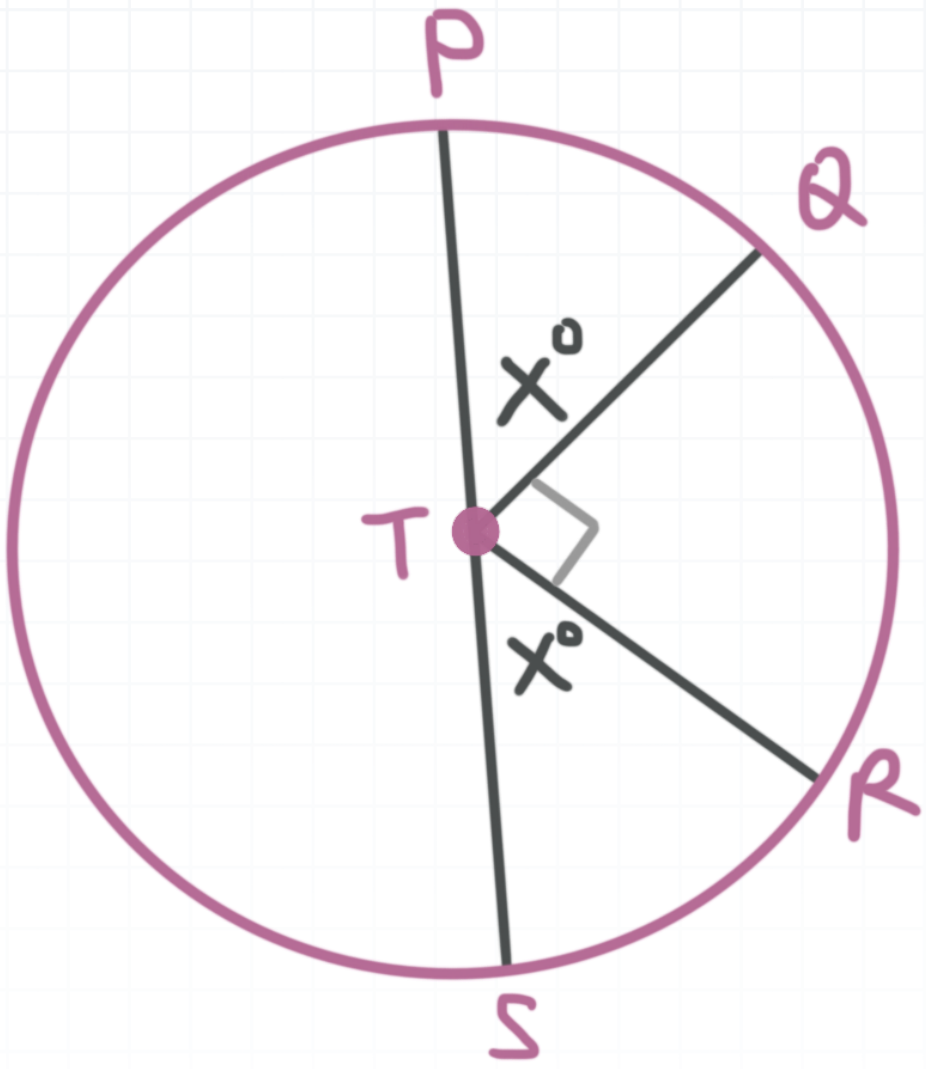

■ 5. In $\odot X$, $\angle UXS \cong \angle SXT \cong \angle UXT$. Find the measure of arc STU.

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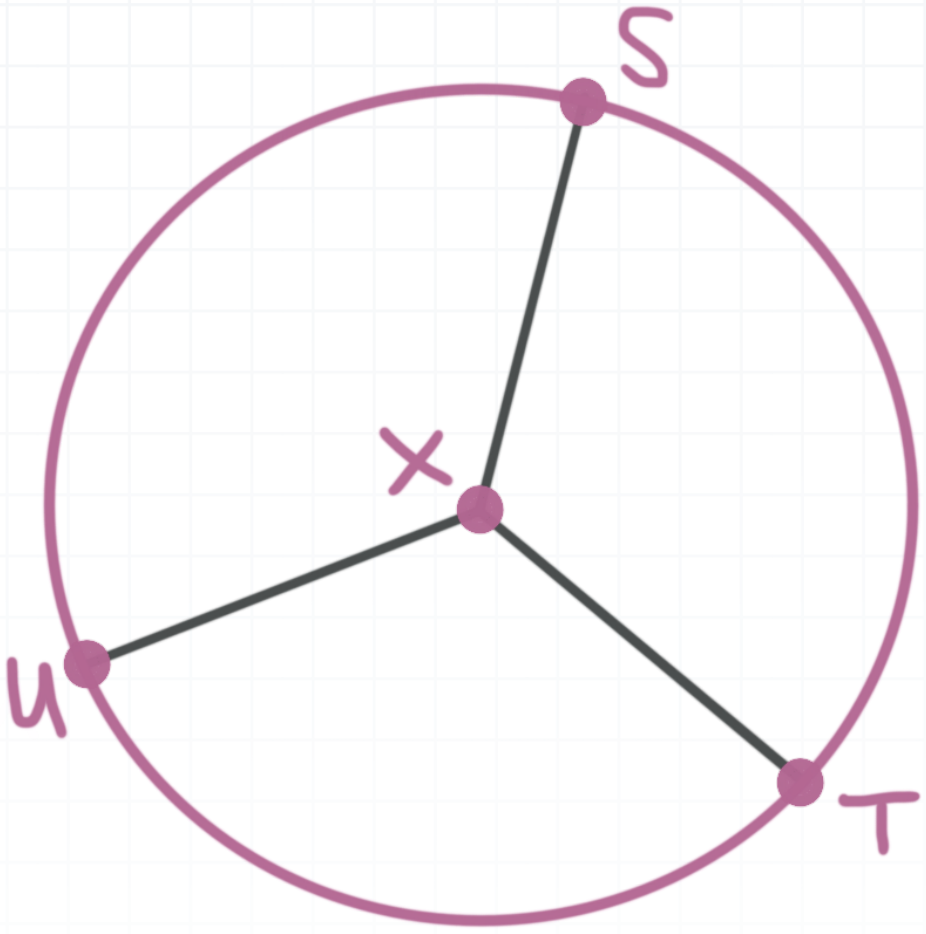

6. In $\odot A$, $m\angle ABC = 15°$. Find the measure of arc BC.

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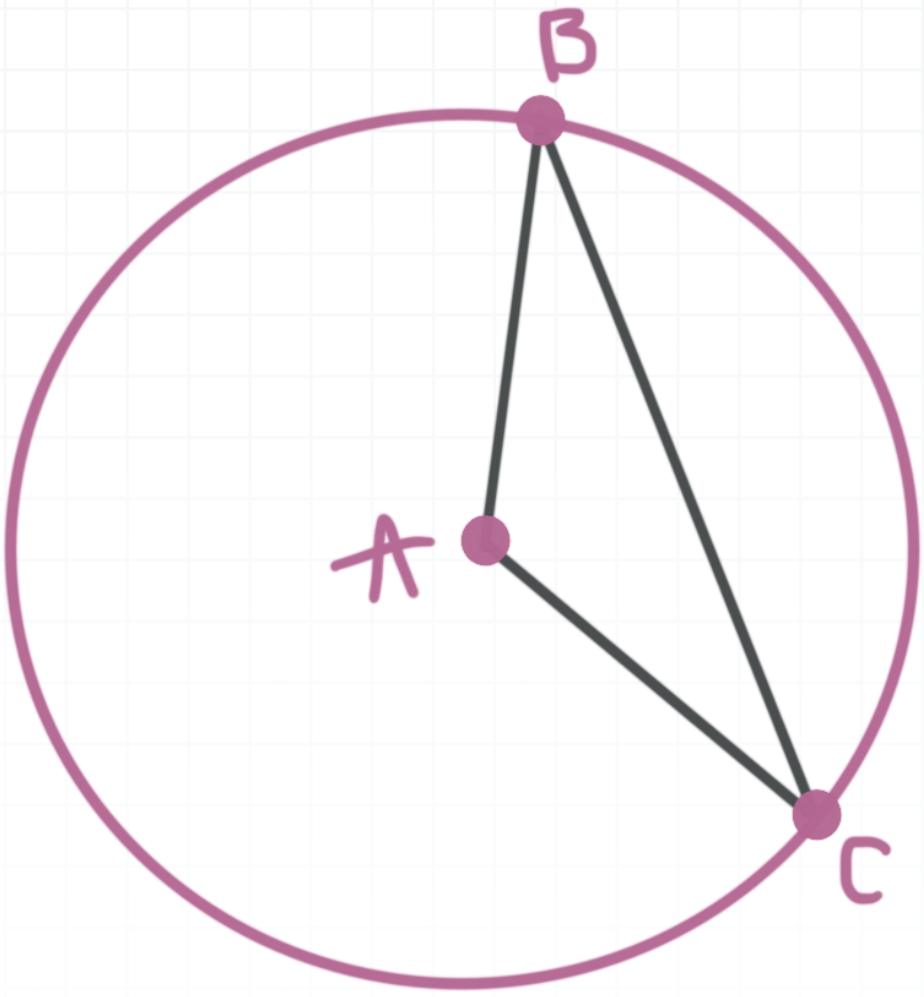

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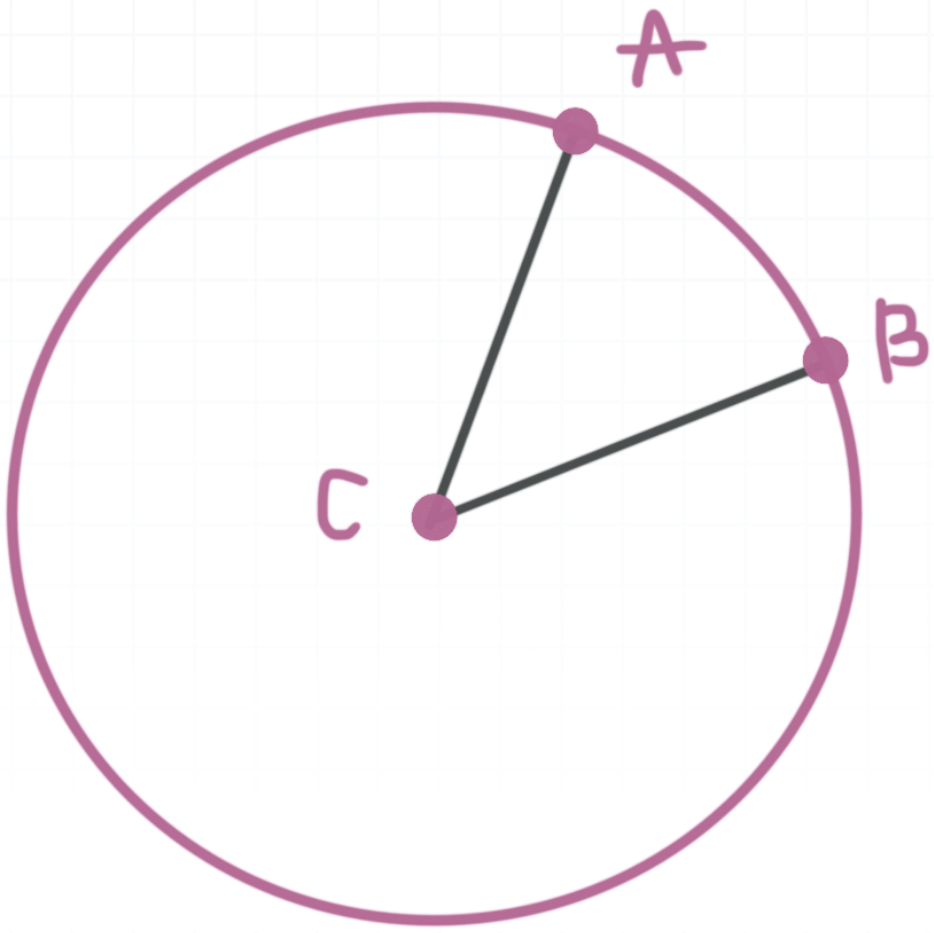
ARC LENGTH

■ 1. In $\odot C$, $m\angle ACB = 50°$. Find the length of arc AB if $CA = 14$. Round your answer to the nearest hundredth.



■ 2. In $\odot M$, $m\angle LMN = 60°$ and $\overline{LP}$ is a diameter. Find the length of arc LPN if $LP = 24$. Round your answer to the nearest hundredth.

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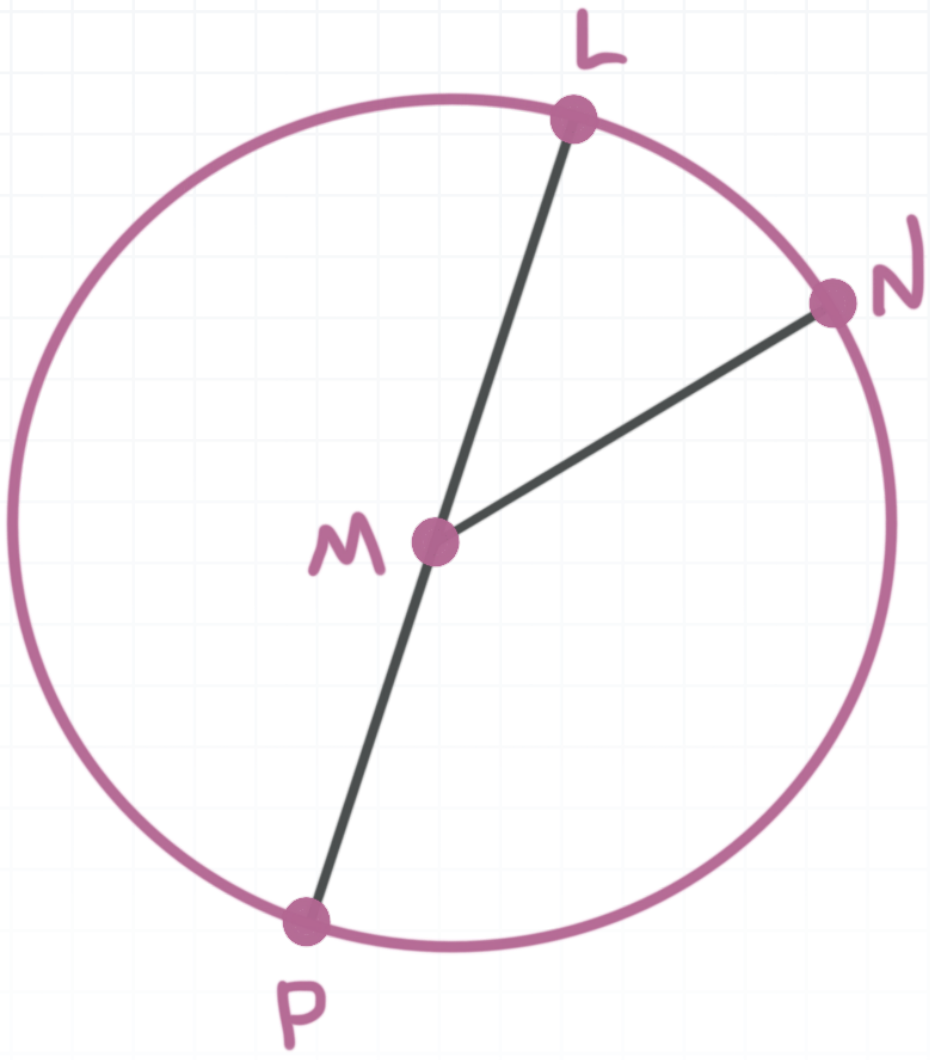

■ 3. $\overline{EG}$ and $\overline{FH}$ are diameters of $\odot D$. Find the length of arc HG if $m\angle EDF = 45°$ and $ED = 16$. Write the exact value.

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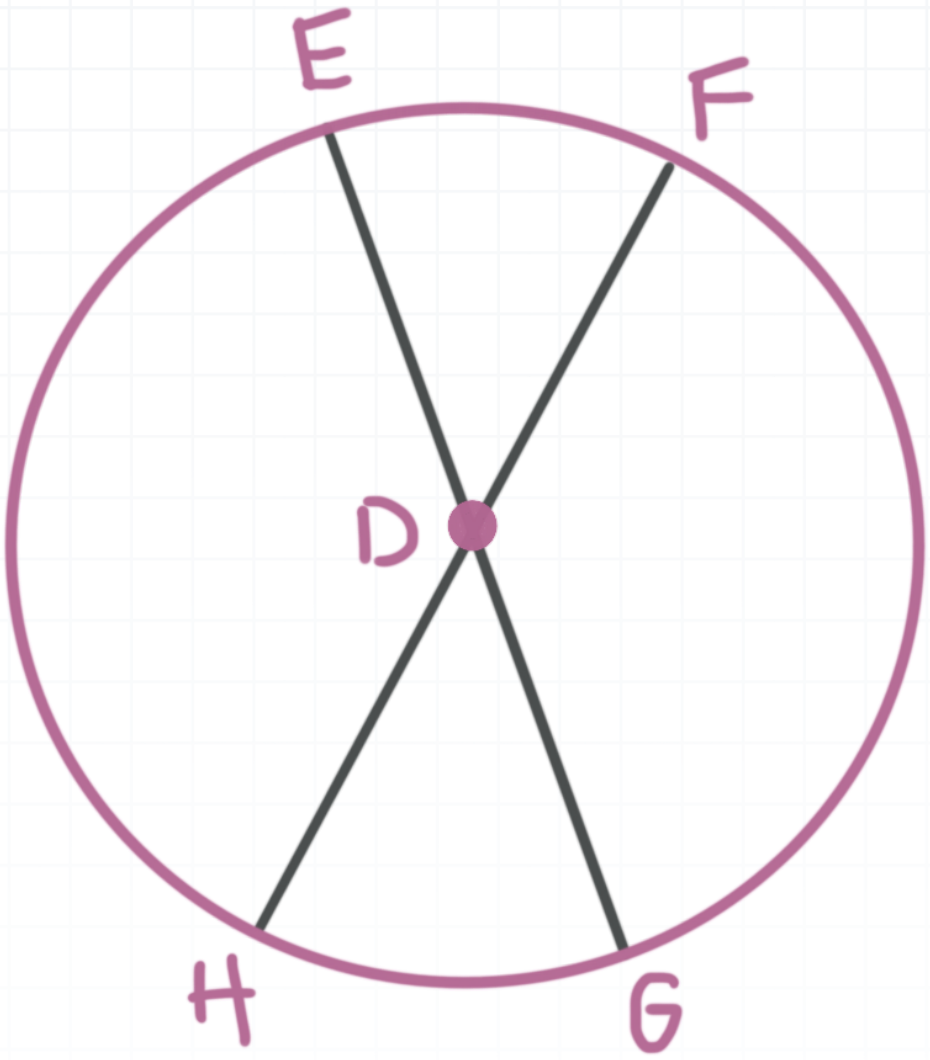

4. The area of square $ABCD$ is 144 cm^2 and circle P is inscribed in the square. $\overline{EG}$ and $\overline{FH}$ are perpendicular to one another, and both are diameters of $\odot P$. E, F, G, and H are midpoints of each side of the square. Find the length of arc EF, rounded to the nearest hundredth.

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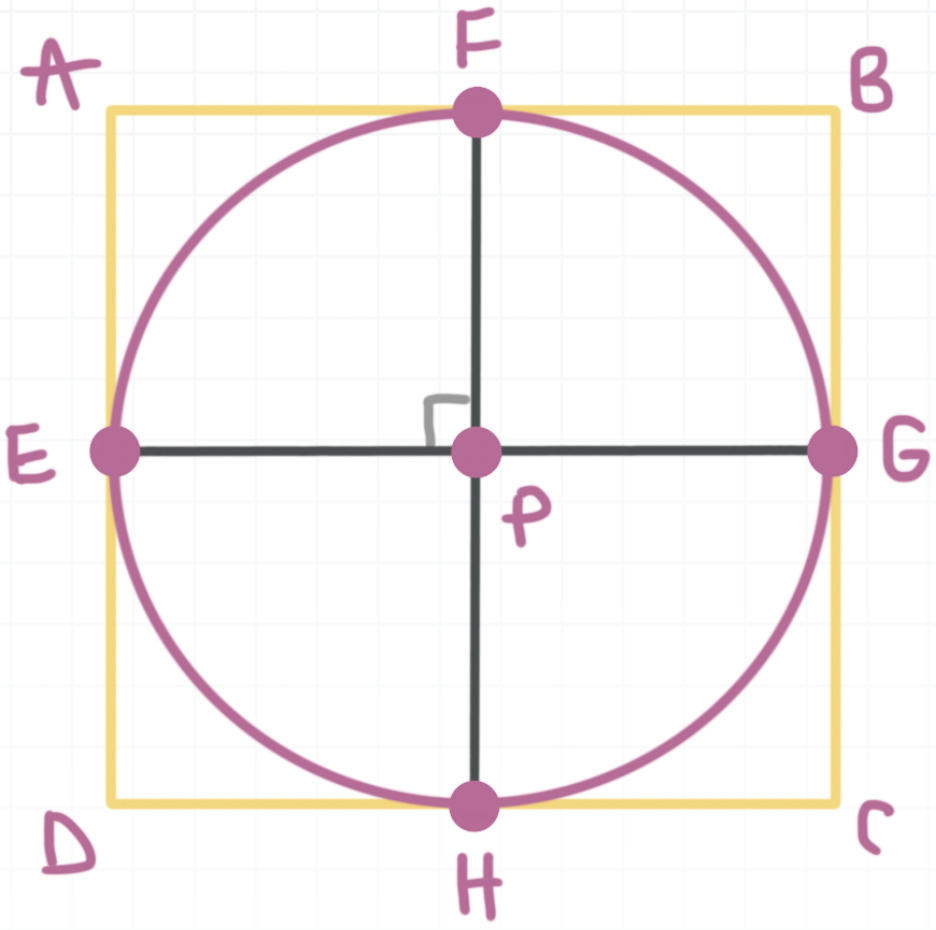

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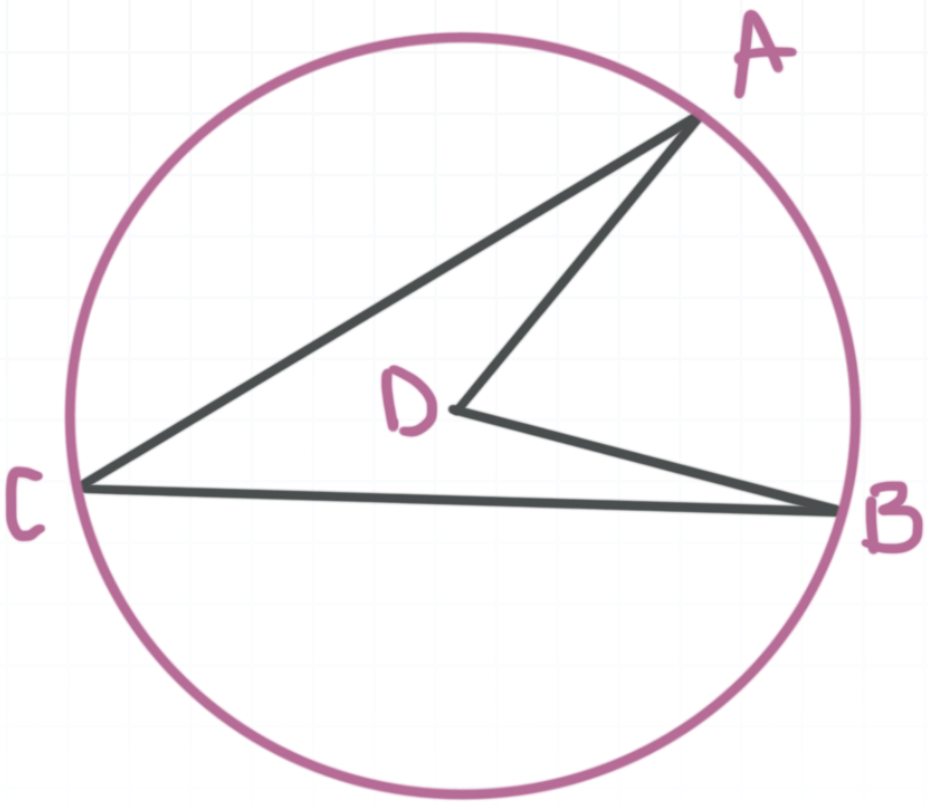
INSCRIBED ANGLES OF CIRCLES

■ 1. In $\odot D$, $m\angle ADB = 88°$. Find $m\angle ACB$.



■ 2. In $\odot E$, $\overline{AC} \cong \overline{CB}$ and $m\angle ABC = 55°$. Find the measure of arc AB.

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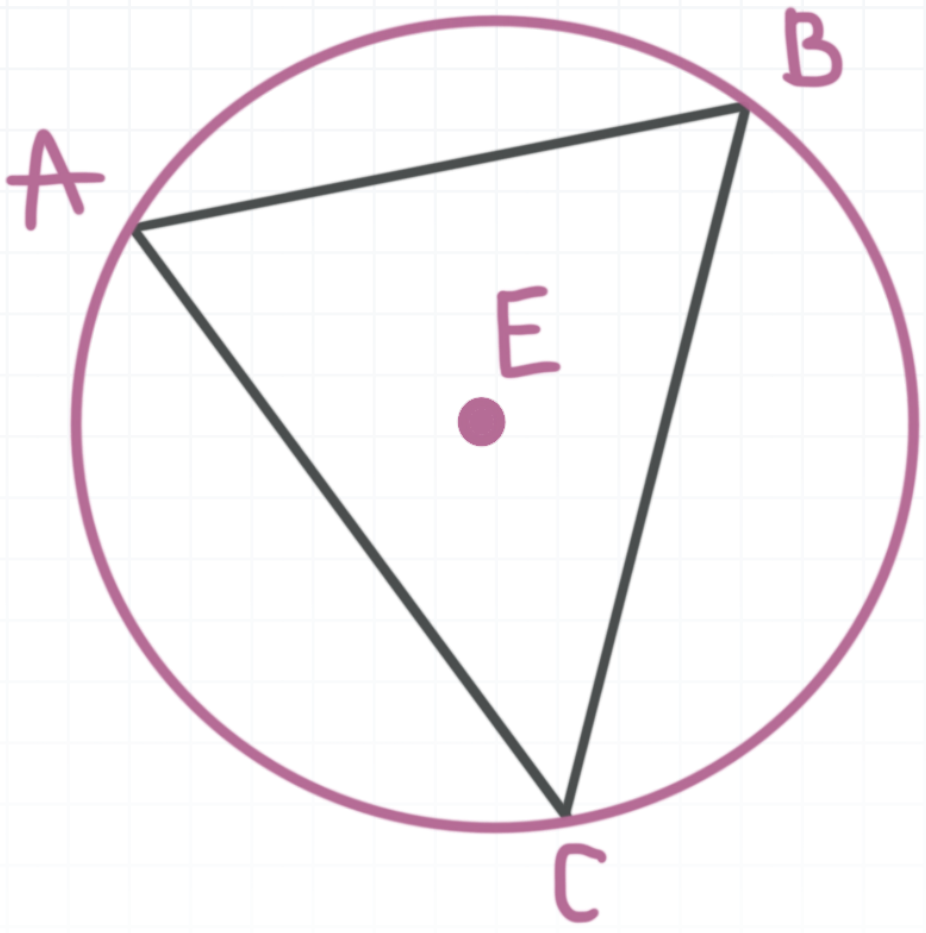

■ 3. In $\odot E$ the measure of arc AB is $100°$, the measure of arc BC is $40°$, and the measure of CD is $110°$. Find $m\angle ABD$.

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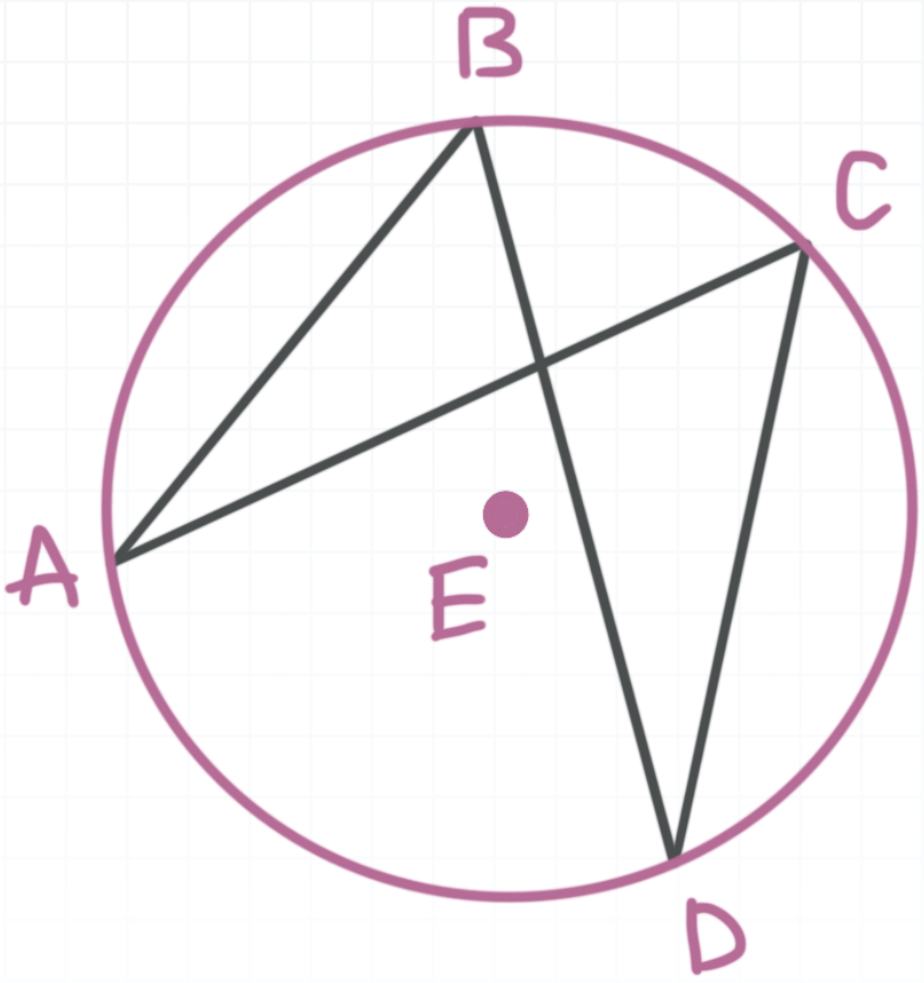

4. In $\odot P$, $m\angle LMO = 2x - 18$ and the measure of arc $LO = 88°$. Find x.

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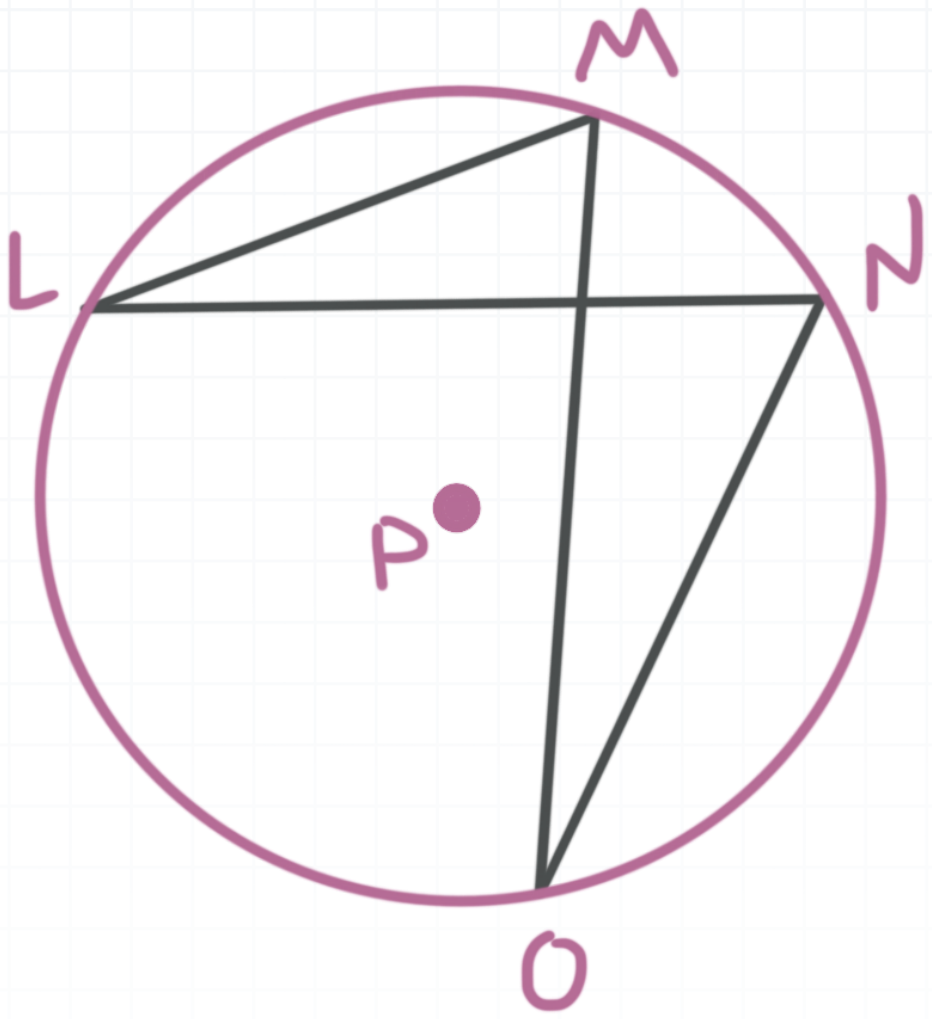
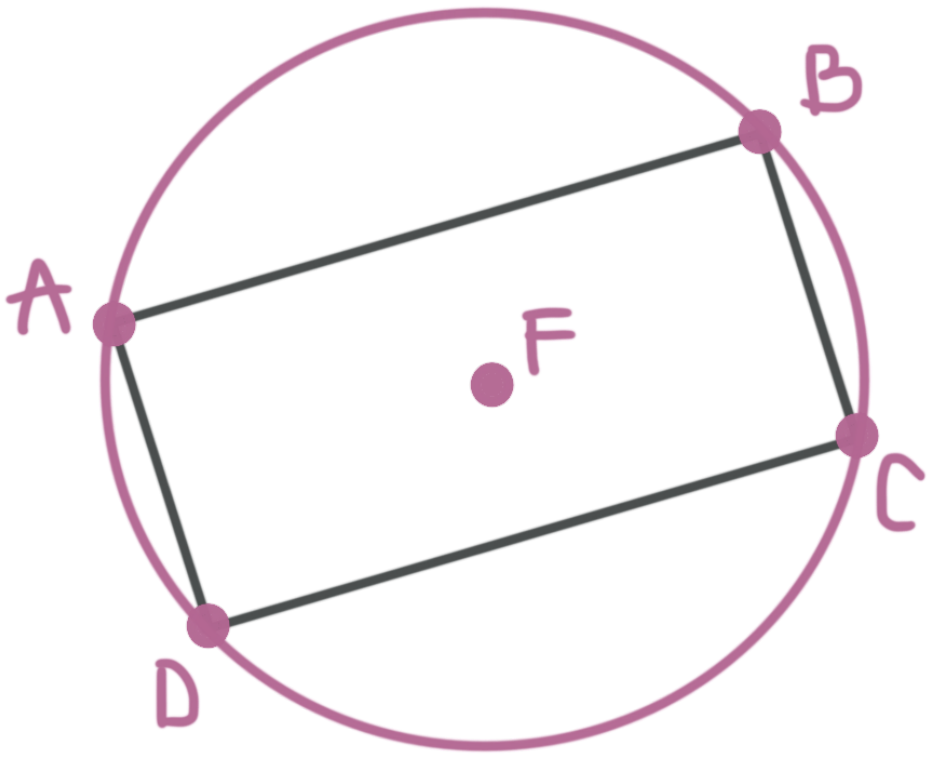


■ 5. Rectangle $ABCD$ is inscribed in $\odot F$ and the measure of arc ACD is $230°$. Find the measure of arc AB.



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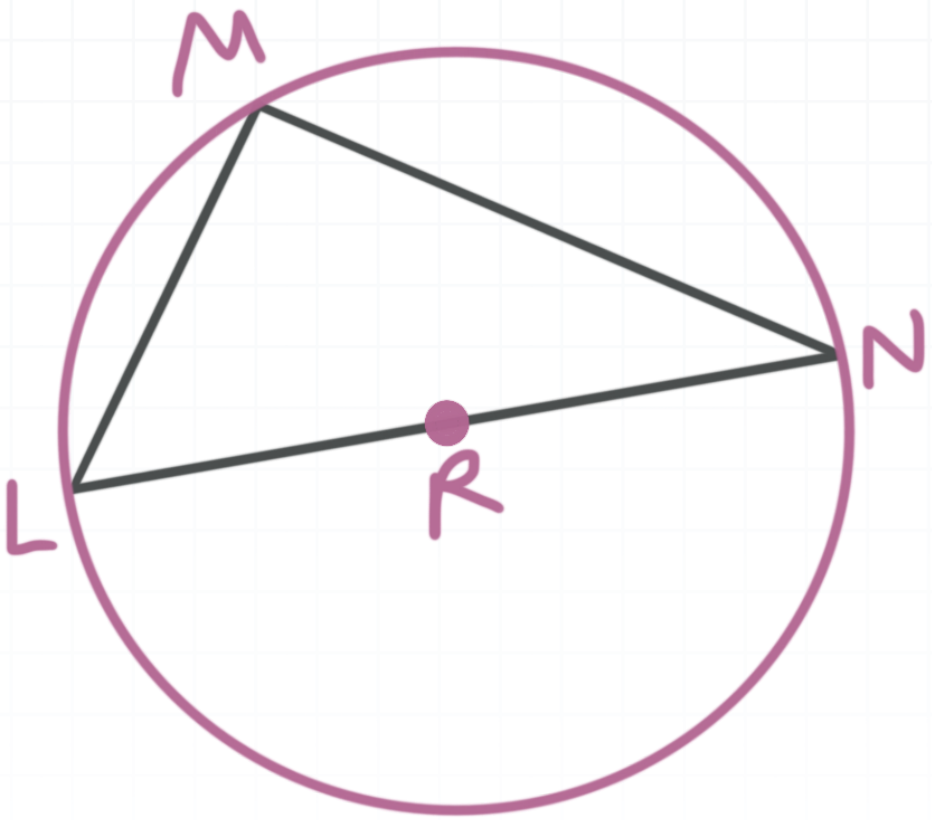
■ 6. In $\odot R$, $\overline{LN}$ is a diameter, $m\angle MLN = 4x + 20$, and $m\angle LNM = 5x - 38$. Find the measure of arc LM.



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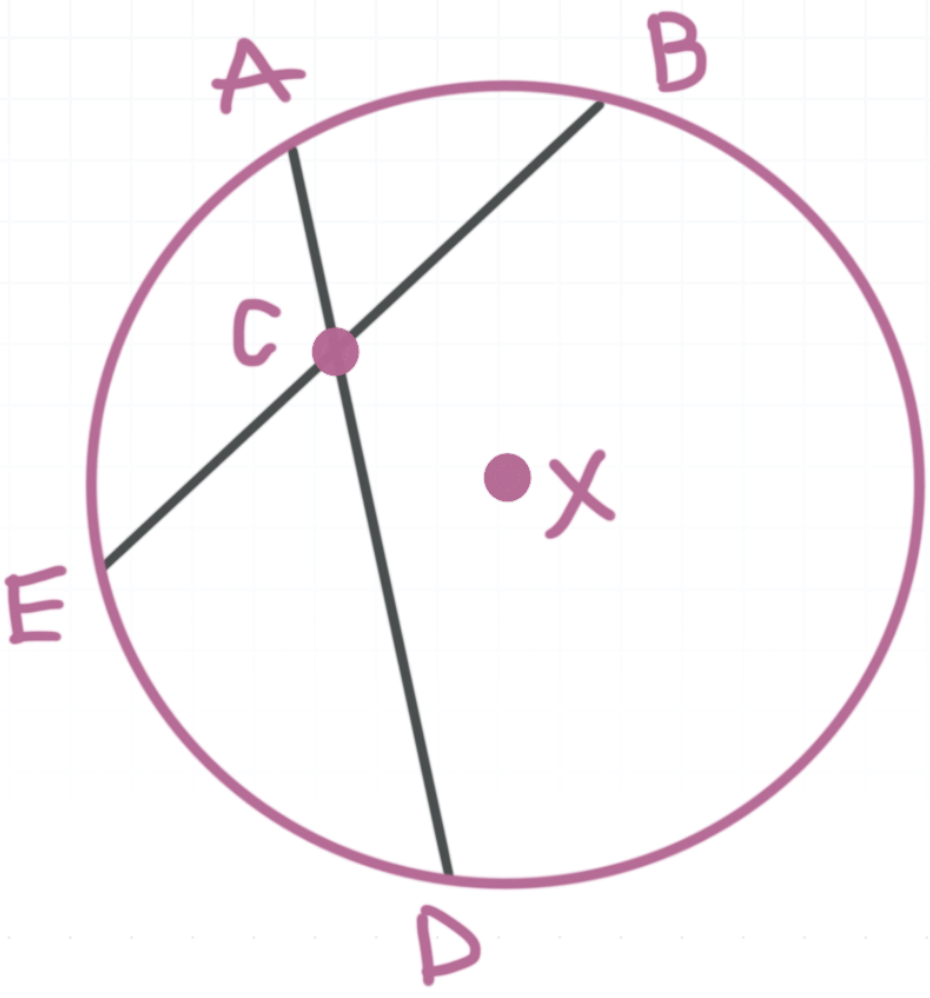
VERTEX ON, INSIDE AND OUTSIDE THE CIRCLE

■ 1. $\overline{AD}$ and $\overline{EB}$ are chords of $\odot X$. The measure of arc AB is $35°$ and the measure of arc ED is $85°$. Find $m\angle ECD$.



■ 2. $\overline{JL}$ and $\overline{KM}$ are chords of $\odot N$. The measure of arc JK is $25°$ and $m\angle JPK = 40°$. Find the measure of arc ML.

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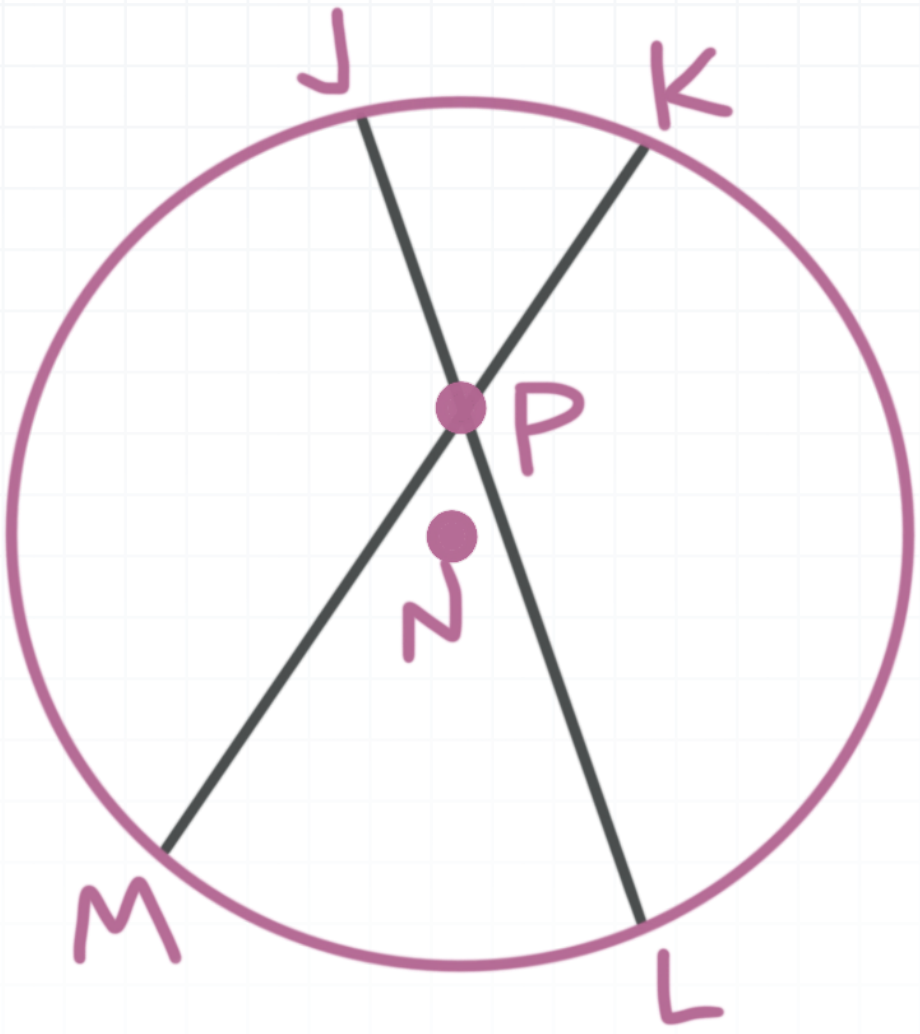

■ 3. $\overline{SQ}$ is a chord and $\overline{TW}$ is a tangent line of $\odot P$. The measure of arc SRQ is $194°$. Find $m\angle SQW$.

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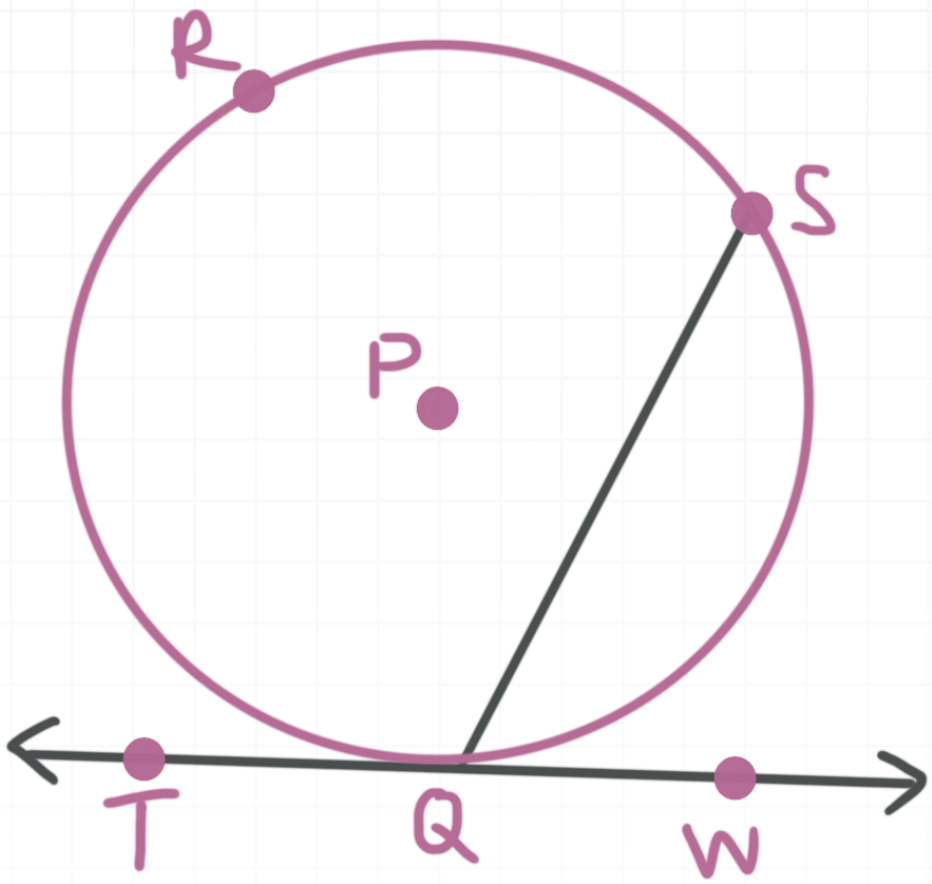
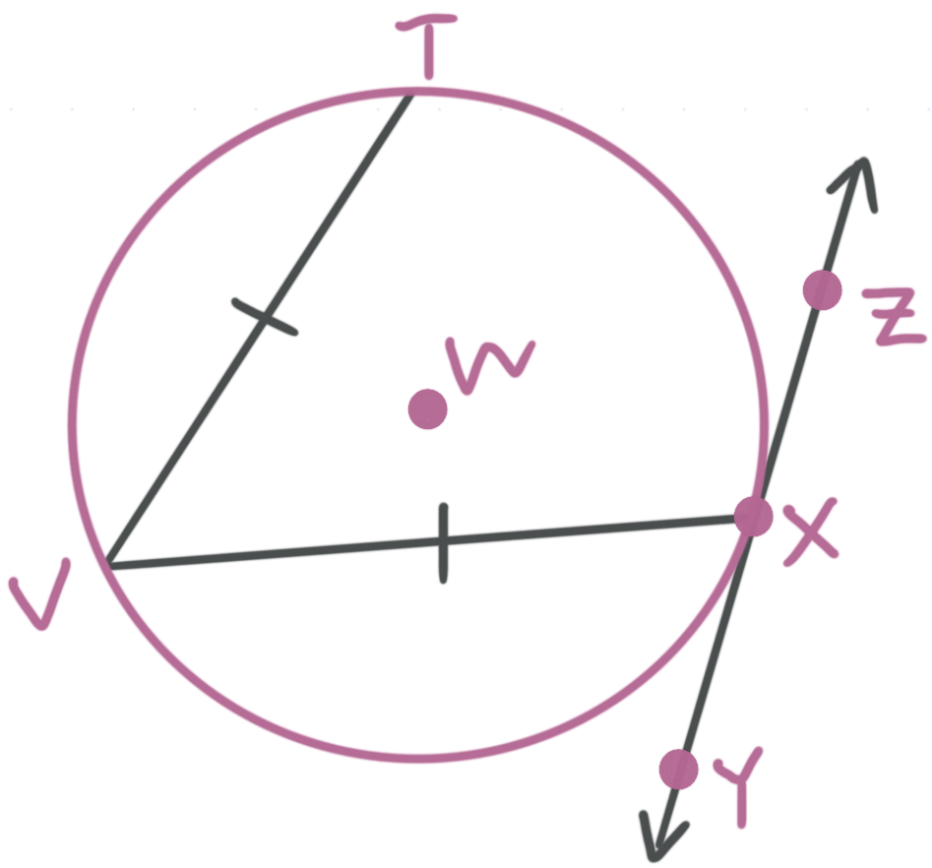


4. $\overline{TV}$ and $\overline{VX}$ are congruent chords, and $\overline{ZY}$ is a tangent line of $\odot W$. If $m\angle TVX = 48°$, find $m\angle VXY$.



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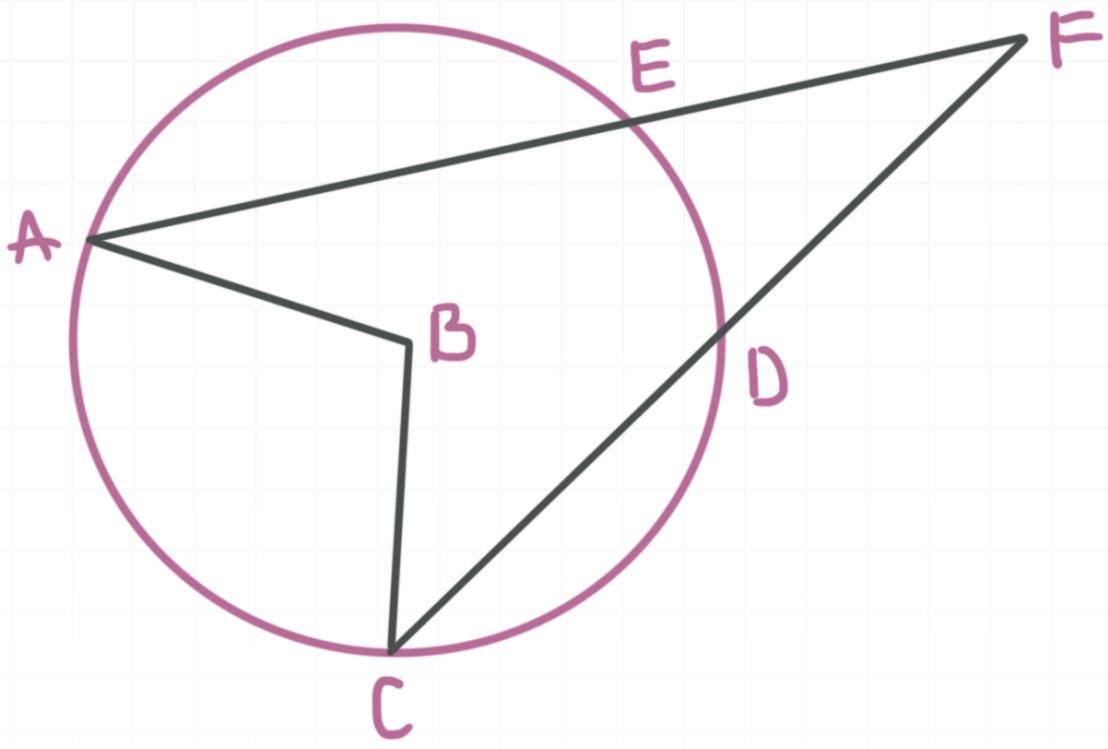
5. arc $AC = 98°$ and arc $ED = 54°$ in $\odot B$. Find $m\angle AFC$.



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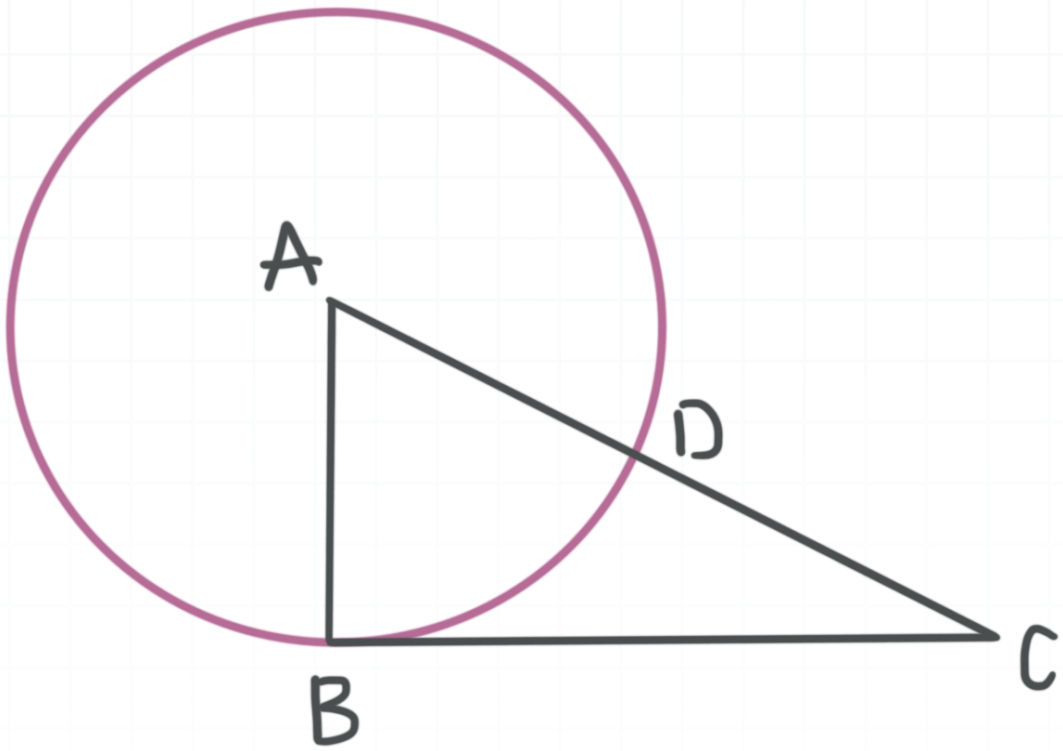
TANGENT LINES OF CIRCLES

1. $\odot A$ has radius AB and tangent line $\overline{BC}$. If $AB = 6$ and $BC = 8$, find DC.



2. $\overline{MO}$ is a tangent line of $\odot N$. If $MO = 12$ and $PO = 8$, find the length of the radius.

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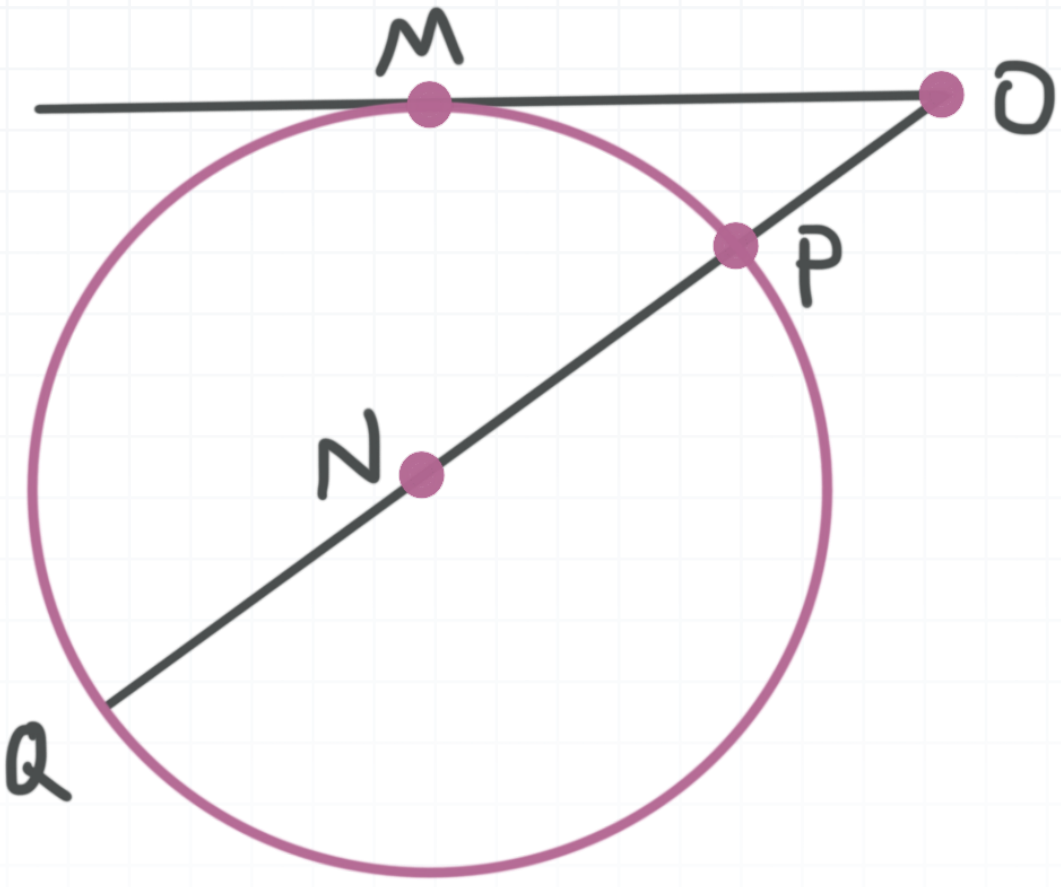

3. $\triangle JKL$ is isosceles, $\overline{JL}$ is a tangent line, $JM = LM$ and $m\angle JKL = 120°$. If $MK = 8$, find JL.

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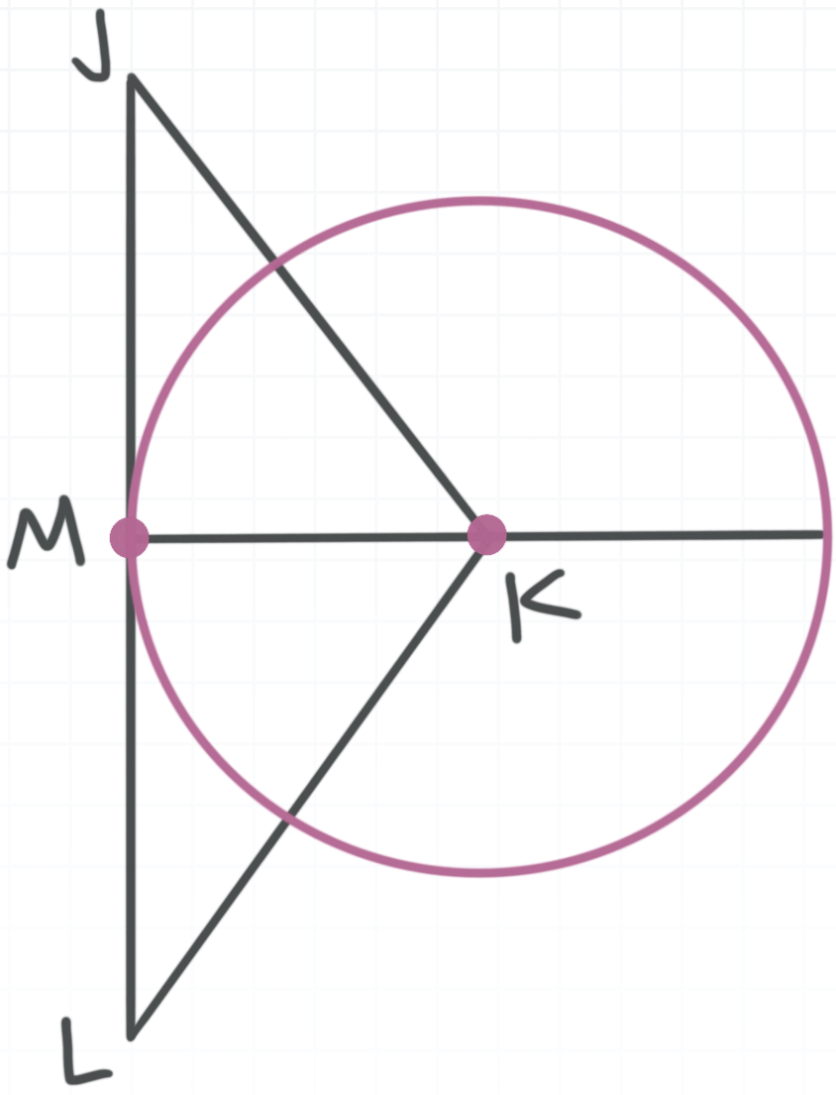

■ 4. In $\odot T$, $\overline{RS}$ is a tangent line and the diameter $\overline{UV}$ has length of 6. Find VS if $RS = 4$.

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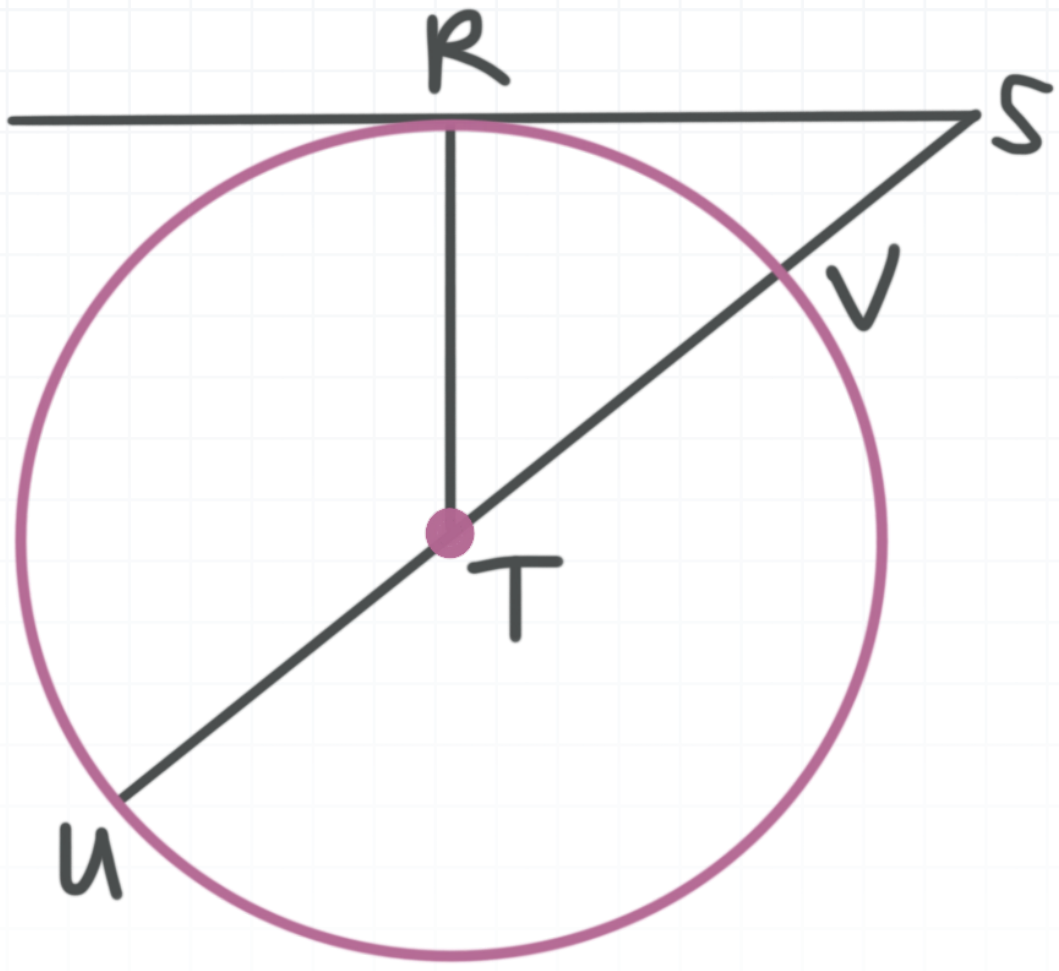

5. arc $EGC = 240°$ and $\overline{BF}$ bisects $\angle EFD$. Find the length of the radius of $\odot F$ if $FB = 14$.

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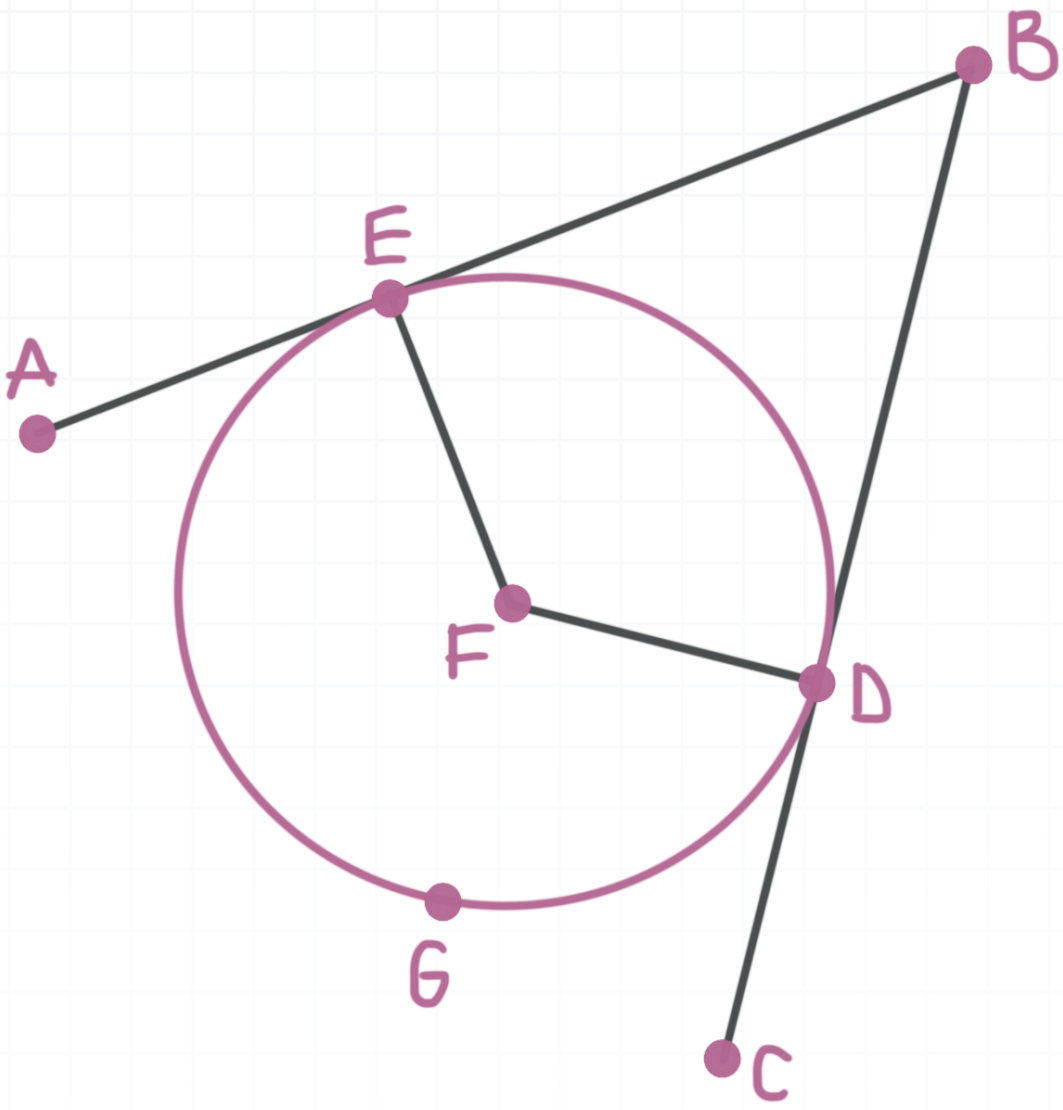

6. Find the perimeter of $\triangle ABC$ if the radius of $\odot D$ is 10 feet and $\triangle ABC$ is equilateral.

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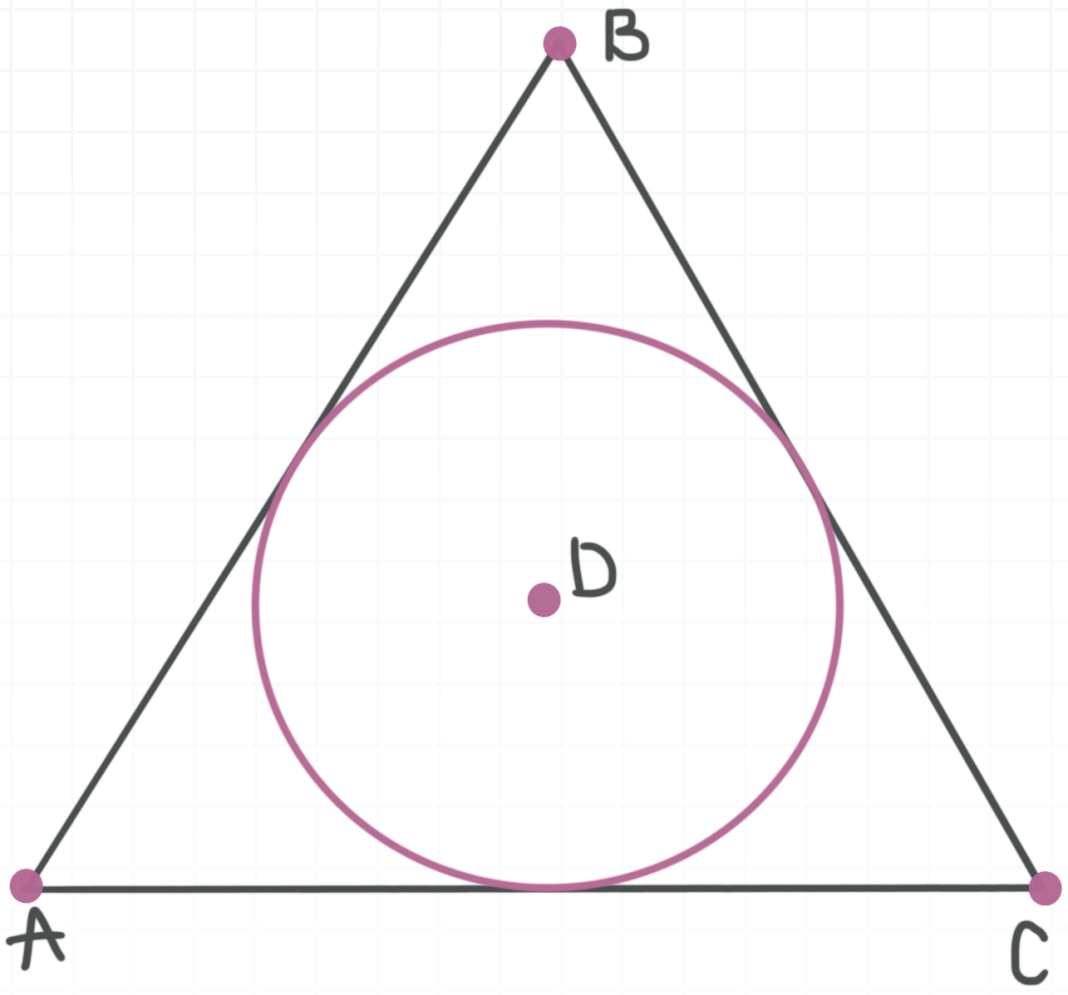

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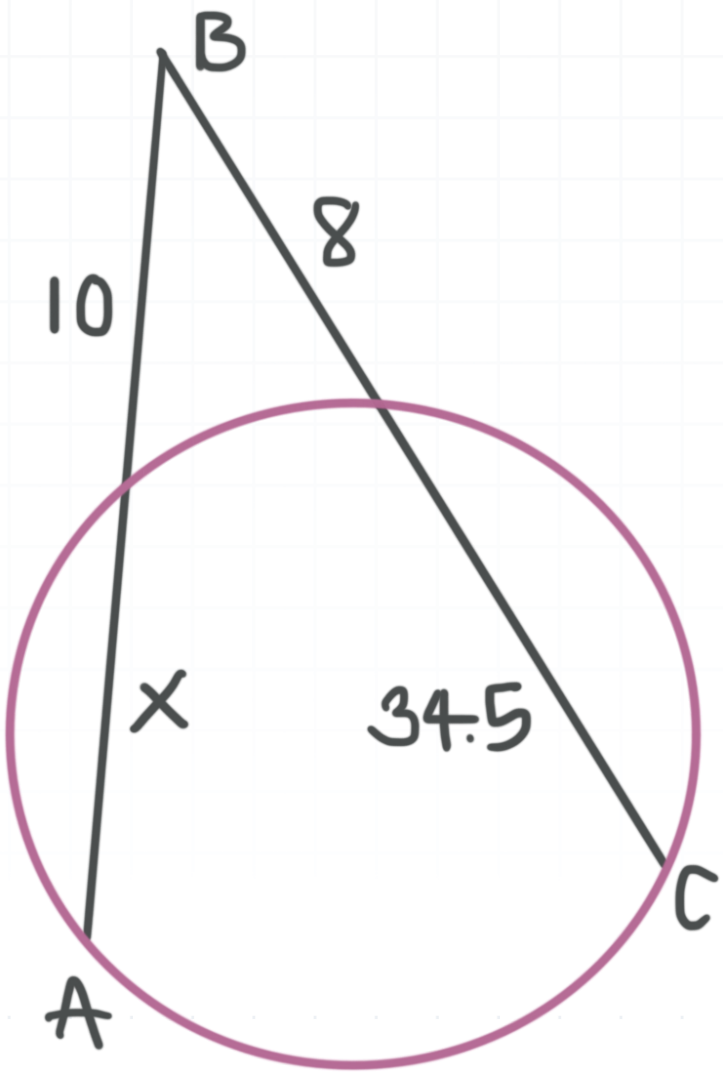
INTERSECTING TANGENTS AND SECANTS

■ 1. $\overline{AB}$ and $\overline{CB}$ are secants and intersect at B. Find the value of x.



■ 2. $\overline{JK}$ and $\overline{LK}$ are secants and intersect at K. Find the value of x.

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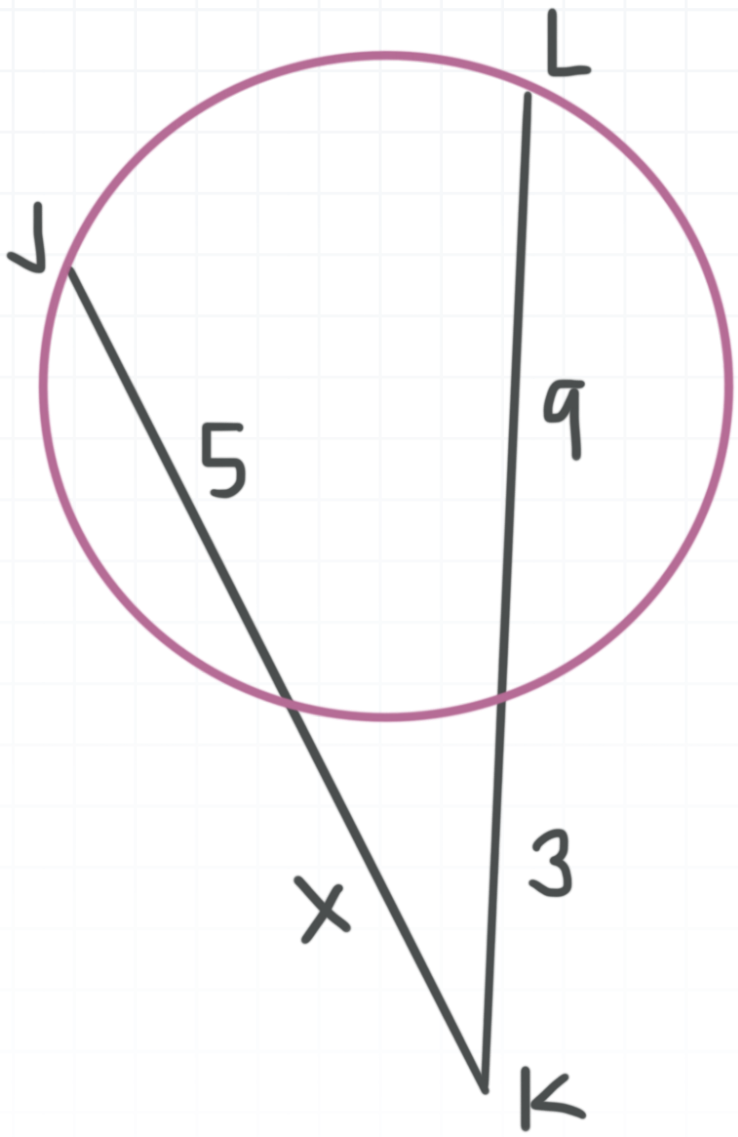

3. $\overline{AB}$ is a tangent line and $\overline{BC}$ is a secant of the circle. Find the value of x.

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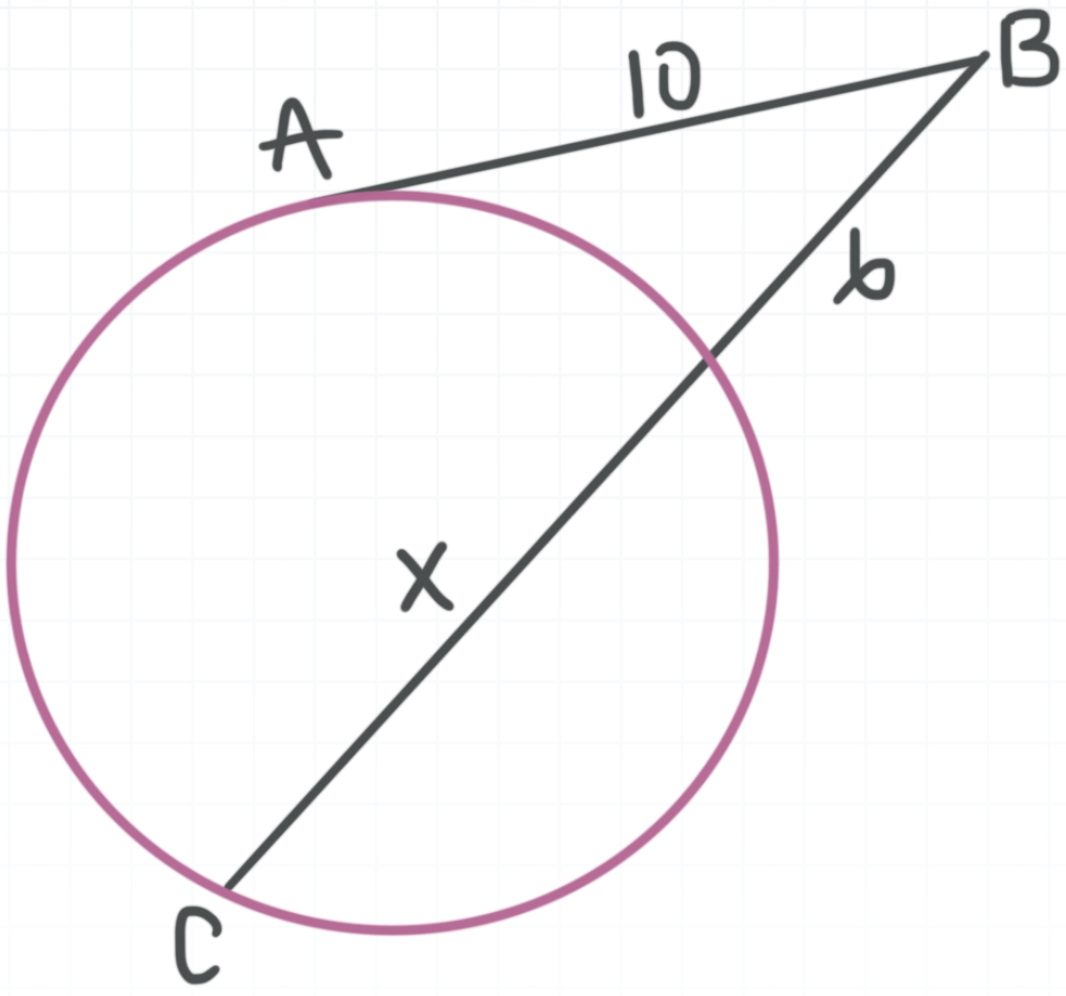

■ 4. $\overline{AB}$ is a tangent line and $\overline{CB}$ is a secant of the circle. Find the length of AB.

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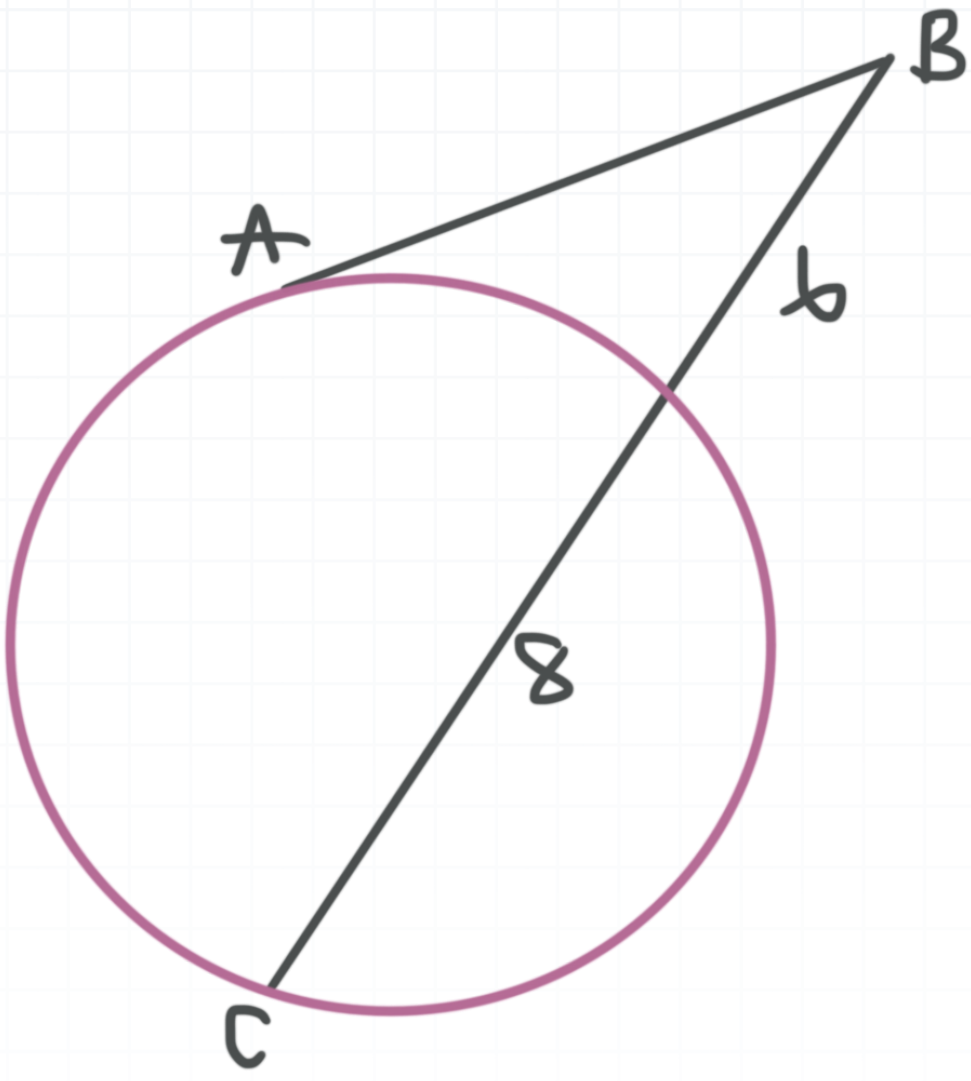

■ 5. $\overline{DB}$ is a secant of $\odot J$ and $\overline{CB}$ is a secant of $\odot K$. $\overline{AB}$ is a tangent for both circles. Find x.

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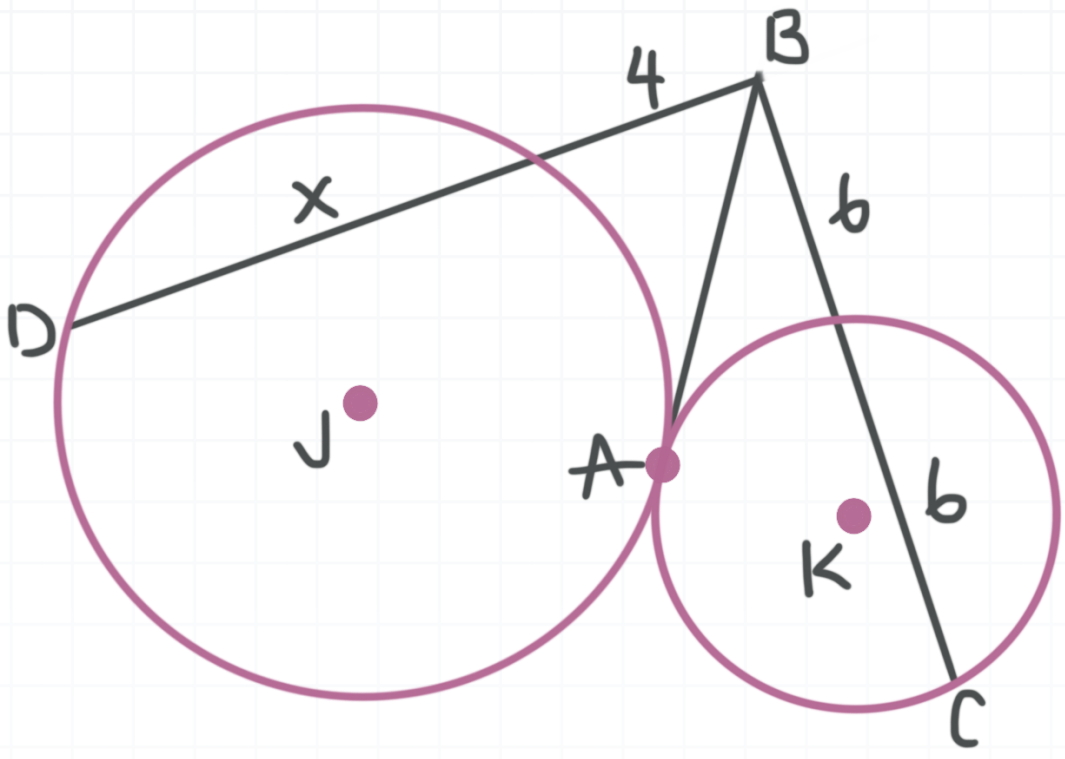
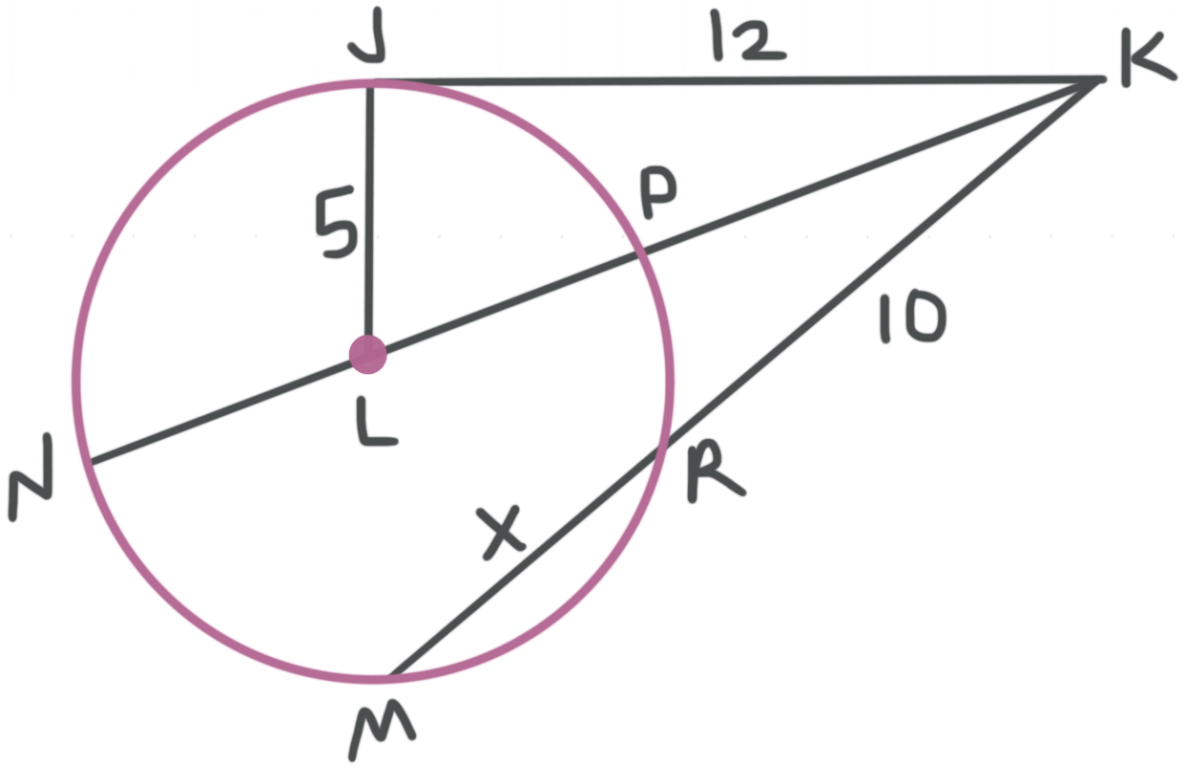


■ 6. $\overline{JK}$ is a tangent line, $\overline{KN}$ and $\overline{KM}$ are secants, and $\overline{LJ}$ and $\overline{LP}$ are radii of $\odot L$. Find x.



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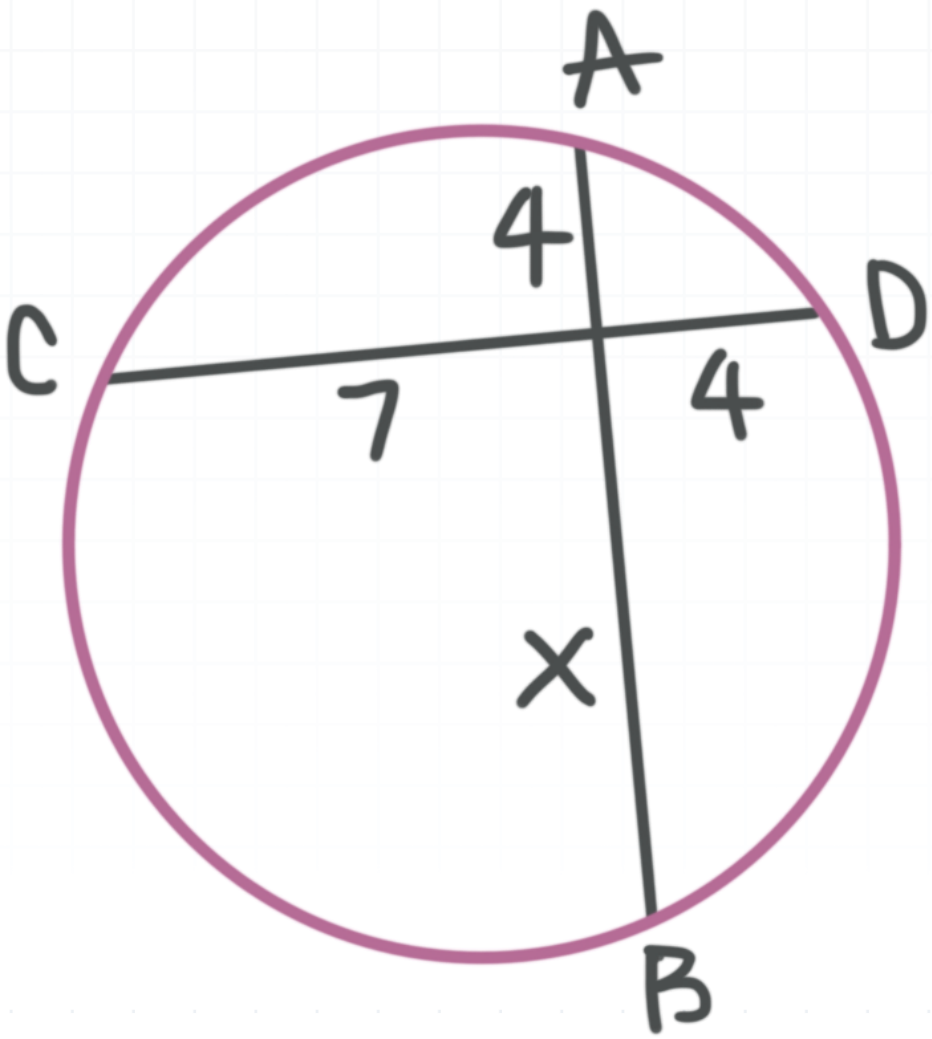
INTERSECTING CHORDS

■ 1. $\overline{AB}$ and $\overline{CD}$ are intersecting chords of the circle. Find x.



■ 2. $\overline{MP}$ and $\overline{QS}$ are intersecting chords of the circle. Find x.

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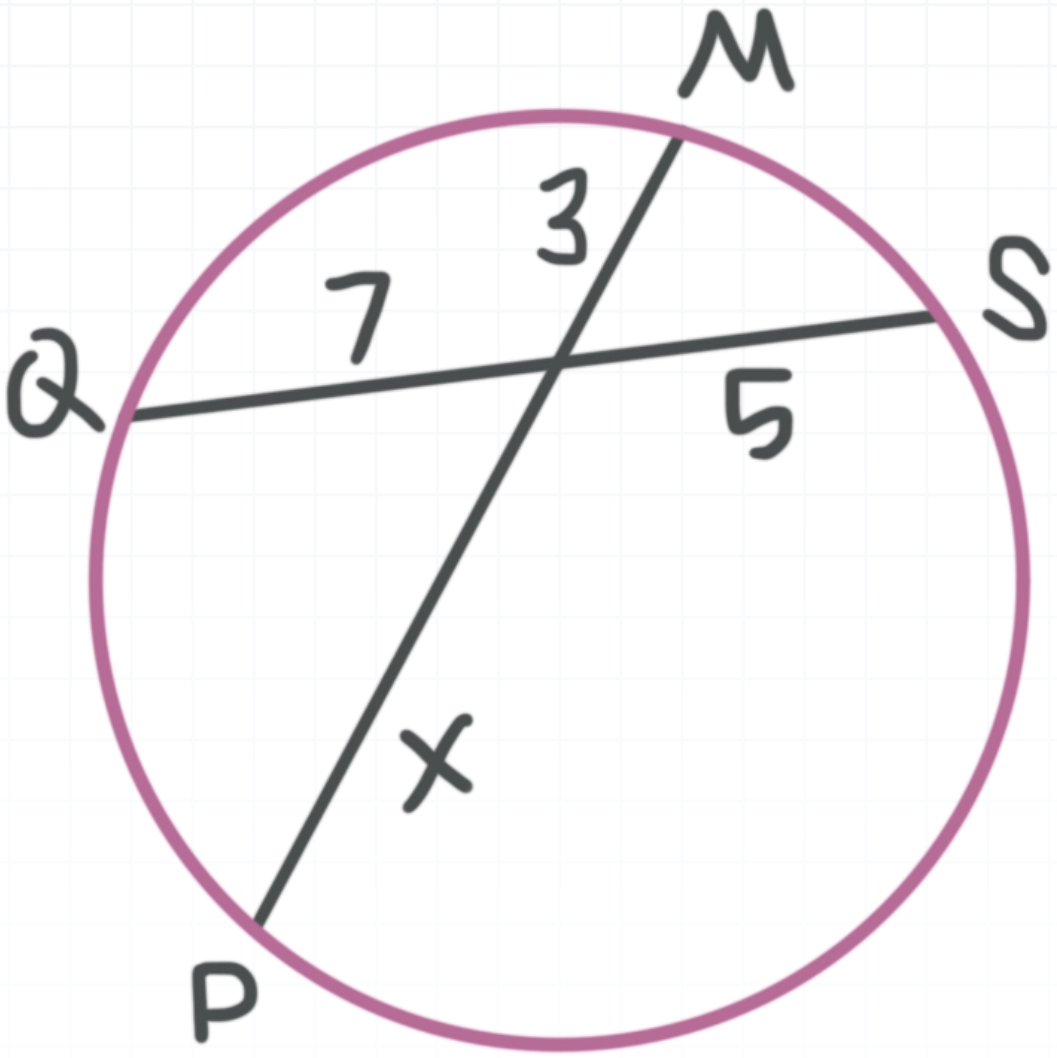

3. $\overline{RT}$ and $\overline{UV}$ are intersecting chords of the circle. Find x.

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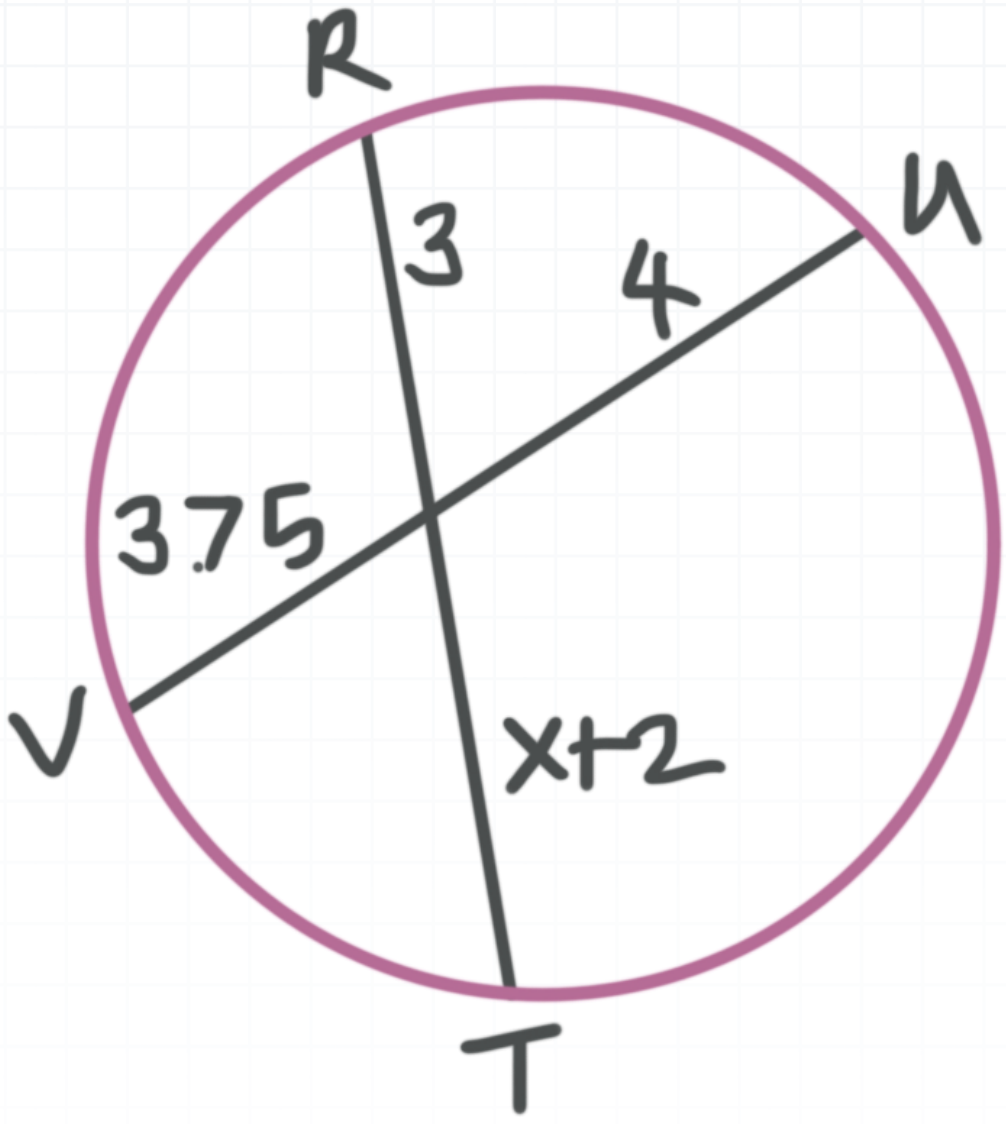

4. $\overline{EF}$ and $\overline{HG}$ are intersecting chords of the circle. Find x.

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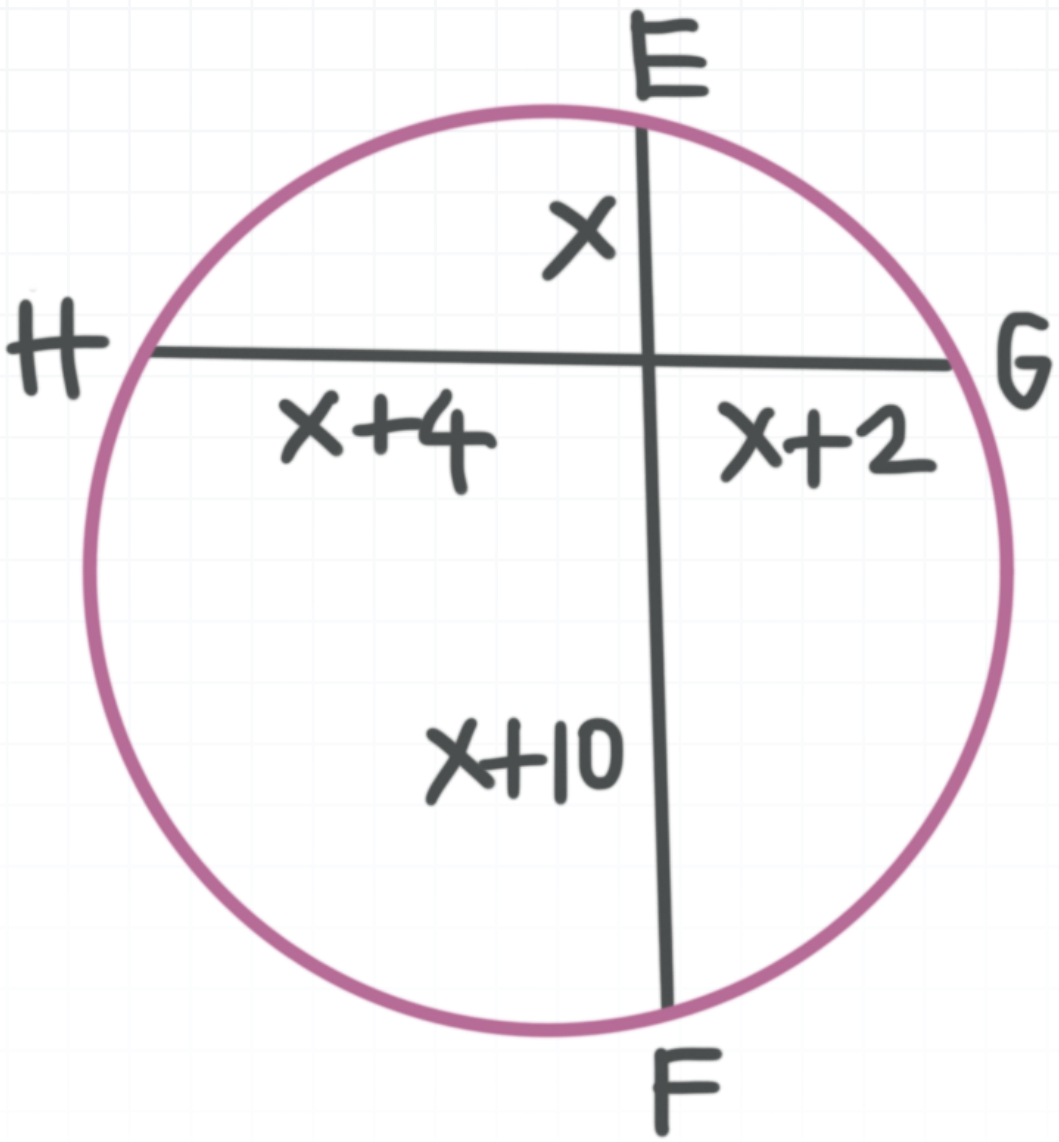

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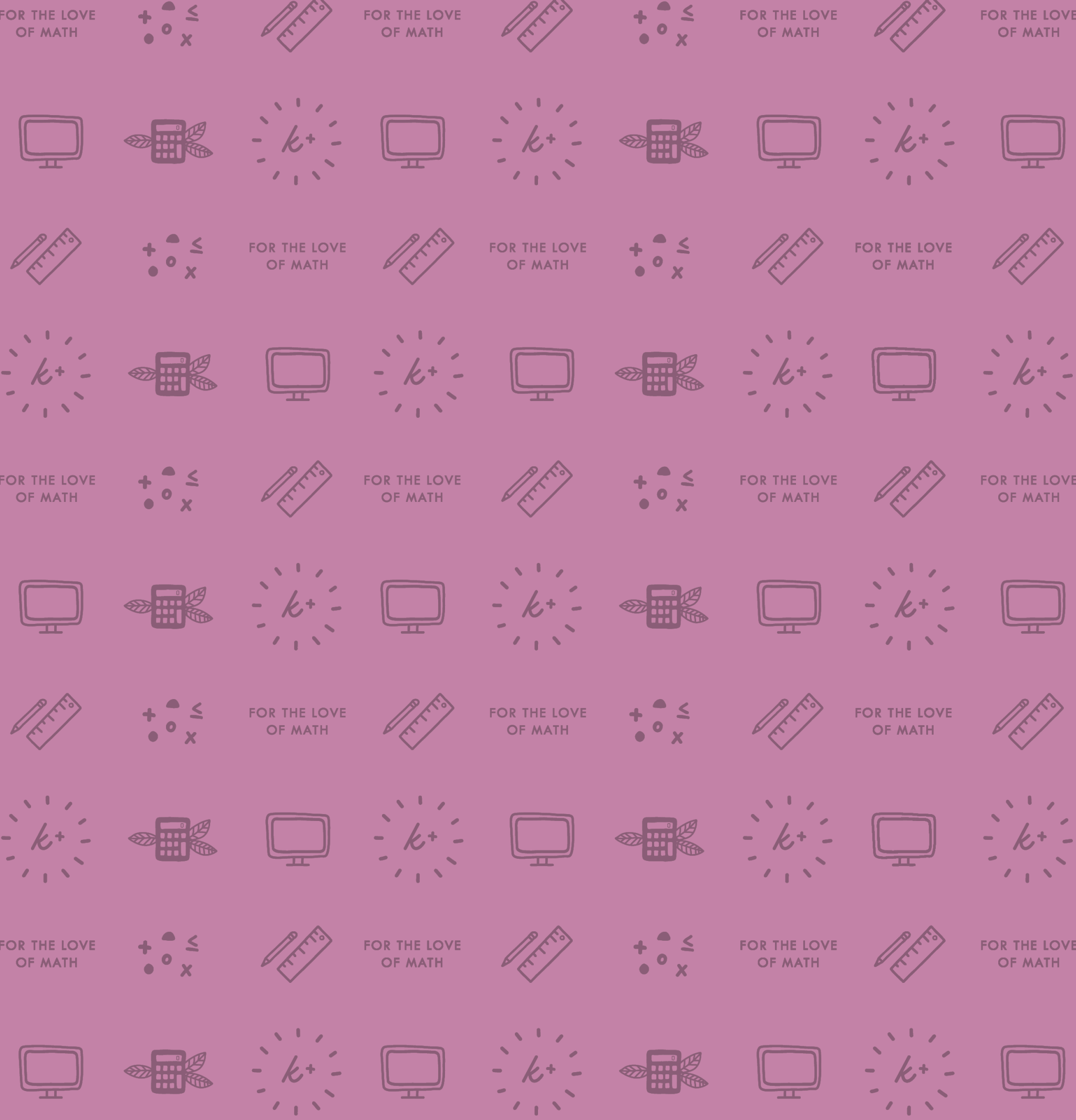

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